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Resources:

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"Materials and Aids for the Visually Impaired Diabetic"
July 1980
Supplement June 1986

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"Publications Catalog"
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($2.00 each)

American Foundation for the Blind
15 West 16th Street
New York, New York 10011

"Resources for Visually Impaired Diabetics"

Vision Foundation, Inc.
818 Mt Auburn Street
Watertown, MA 02172

Quarterly Newsletter entitled "The Voice of the Diabetic" is published by the Diabetic Division of the National Federation of the Blind (NFB). A subscription to it (with its column of Diabetes Aids & Resources) and a membership in NFB costs $2.00/year. Address is:

NFB
919 Main Street, Suite 5
Rapid City, SD 57701
605-348-8418

COMBINED HEALTH INFORMATION DATABASE

LITERATURE SEARCH

Materials and Aids for the Visually Impaired Diabetic: Update

November 1988

National Diabetes Information Clearinghouse
Box NDIC
Bethesda, MD 20892

This Literature Search is from the Diabetes Subfile of the Combined Health Information Database. Each citation contains information about the author, title, and source of the item, as well as a summary of its contents. Depending on the type of material, the citation also may include information about a corporate author, where to obtain the item, and its price. Formats of audiovisuals are provided.

The following sample citation explains codes that may be used in a literature search:

(Title)	TI	Nonverbal Teaching Poster for Diet Instruction (Poster).
(Author)	AU	anon.
(Corporate Author)	CN	Central Ohio Diabetes Association.
(Source)	SO	Columbus, OH: Central Ohio Diabetes Association; 1984.
(Physical Description)	PD	1 poster; 18 x 24 inches; col.
(Producer/ Availability)	AV	Central Ohio Diabetes Association; 803 West 5th Avenue; Columbus, OH 43212. (614) 486-7124. Price: $3.00.
(Abstract)	AB	This poster was designed as a tool for health professionals to use in conjunction with a meal plan when giving diet instruction to people with limited reading skills.

Other codes that may appear are LG (Language), SE (Series), EV (Evaluation), and NT (notes). With the exception of journal articles, sources for items listed are given after the code "AV" (producer/availability). Please contact the producer for a copy of the item.

Unsigned abstracts have been prepared by clearinghouse staff. Sources of other abstracts are indicated by the following abbreviations:

AA Author Abstract

UM University of Michigan, Learning Resource Center and Diabetes Research Training Center, Audiovisual Resources for Diabetes Education. 5th ed. Ann Arbor: The University of Michigan, 1984.

-M Abstract Modified by Clearinghouse staff.

The Combined Health Information Database (CHID) is available through BRS Information Technologies. If you would like references to materials on other topics, you may request a special literature search of CHID from a library that subscribes to BRS or from the National Diabetes Information Clearinghouse. To request a search, please write or call the National Diabetes Information Clearinghouse, Box NDIC, Bethesda, MD 20892, (301) 468-2162.

MATERIALS FOR HEALTH PROFESSIONALS

1
AN DM JA03086.
AC HEALTH PROFESSIONAL (100).
TI Glucose Monitoring: A New Technique in Preparing the Glucose Strip.
AU Spencer, L.N.
SO Diabetes Educator. 14(3): 250-251. May-June 1988.
AB An illustrated report discusses and shows the use of a new technique for blood glucose monitoring in diabetes management. The technique was developed for patients whose vision and coordination are less than optimal for applying blood to the chemically treated pad. Nurses and patients report that it is easier to prepare the blood strip using this technique, which also requires less blood.

2
AN DM JA02871.
AC HEALTH PROFESSIONAL (100).
TI Promoting Diabetes Self-Management and Independence in the Visually Impaired: A Model Clinical Program.
AU Bernbaum, M., et al.
SO Diabetes Educator. 14(1): 51-54; January-February 1988.
AB Although general rehabilitation facilities and services addressing only visual impairment are widespread throughout the United States, the additional support required by the visually impaired individual with diabetes is usually not readily available. A clinical program for visually impaired patients with diabetes has been created at St. Louis University School of Medicine specifically to accommodate the needs of this patient subgroup. The program employs an integrated multidisciplinary approach that includes: 1) diabetes education focusing on the teaching of skills and devices needed by the visually impaired for diabetes self-management; 2) a monitored exercise program, individually tailored to accommodate visual, cardiovascular, and neurological limitations; 3) group support with individual counseling as indicated; and 4) a prospective evaluation of measures of glucose control, exercise tolerance, and psychological adjustment. Data obtained at the onset and completion of each 12-week session are compared to assess individual progress and to provide objective feedback for evaluation and modification of the program. Participants met three times per week for three hours. The first half of each session is spent in exercise, while the second half is devoted to diabetes education, skills training, and group support. (29 references).

3
AN DM JA02601.
AC HEALTH PROFESSIONAL (100).
TI Restoring Physical and Emotional Independence: A Special Program for the Visually Impaired Diabetic Patient.
AU Bernbaum, M.
SO Juvenile Diabetes Foundation Countdown. Spring 1987. pp 18-20.
AB A 12-week program developed at the St. Louis University School of Medicine to meet the specific needs of visually impaired people with diabetes is reviewed. The program is staffed by a specially trained

health care team and is designed to help participants regain independence by teaching them how to use adapted devices and techniques for diabetes self-management. The participants learn to prepare accurate insulin injections and perform self-monitoring of blood glucose and attend supervised exercise sessions at a specially modified gymnasium. A series of tests are given at the beginning and end of the program to evaluate each person's general health and level of diabetes control. The author, who is blind and has diabetes, suggests that the data obtained from this program could be useful in generating interest in the needs of visually impaired people with diabetes and in developing similar programs across the country.

4
AN DM BK00700.
AC HEALTH PROFESSIONAL (100).
TI Rehabilitation Resource Manual.
AU Weisse, F.A.
SO Institute for Scientific Research. 1987. 43 p.
AV Available from Resources for Rehabilitation. 33 Bedford Street, Suite 19A, Lexington, MA 02173. (617) 862-6455. PRICE: $20.00.
AB This manual provides rehabilitation resource information for those working with the visually impaired. It provides referral guidelines for medical professionals and social workers, a professional reading list, and national sources of information on eye diseases and vision loss. It also describes various eye diseases such as cataracts and diabetic retinopathy and the needs of different age groups. Additional sources of optical and non-optical aids and services are provided along with a list of national consumer and self help groups.

MATERIALS FOR PATIENTS

1
AN DM JA03077.
AC PATIENT (400).
TI Independent Living For the Visually Impaired.
AU Vorce-Tish, H.
SO Diabetes Self-Management. p. 21-23. May-June 1988.
AB A brief report describes some of the services provided at 'low vision centers' for the visually impaired and reviews some optical aids available for general and medical use. Included are descriptions of the initial eye examination and other services (e.g., counseling) provided by low vision clinics. Specific optical and medical aids, their characteristics, uses, and costs are outlined.

2

AN DM JA02653.
AC PATIENT (400).
TI Cooking Tips for the Visually Impaired.
AU Bernbaum, M.; Eachus, G.
SO Diabetes Self-Management. March-April 1987. pp 38-41.
AB Cooking tips, techniques, and equipment helpful for visually impaired people with diabetes are presented. Guidelines are provided for establishing a well-organized and accessible kitchen and ideas for creating an appropriate labeling system for foods. Strategies are described for adapting cooking and measuring equipment, slicing and chopping food, and cooking on gas and electric stoves and in microwave ovens. Hints are offered for preparing, serving, and storing both hot and cold foods and beverages. A list of cassettes, large-print, and Braille cookbooks and sources for ordering products especially designed for people with visual impairments are included. READING LEVEL: 13.

3

AN DM JA02623.
AC PATIENT (400).
TI Medication Aids for the Visually Impaired.
AU Carr, R.B.
SO Diabetes Self-Management. November-December 1986. pp 24-25.
AB Methods are presented to aid people who have varying degrees of visual impairment to organize and identify their medications. Techniques for storing medicines in appropriate places and for taking medications include using a magnifier to read the print on bottles and developing a system of taking medicines at certain times and places. In addition, the article includes tips for identifying drugs through the use of different sizes of bottles or caps and methods for labeling bottles so that they are easily identifiable by touch. A chart is included that lists the costs of and recommended uses for visual aids. READING LEVEL: 11.

4

AN DM JA02475.
AC PATIENT (400).
TI Preparing Injections: A Guide for the Visually Impaired.
AU Barnow, D.H.
SO Diabetes Self-Management. July-August 1986; pp 30-31.
AB Procedures for blind people with insulin-dependent diabetes mellitus (IDDM) to administer their own insulin injections are presented. Instructions are provided for operating four mechanical aids: an insulin dose monitor; a needle guide and syringe vial holder; a site selector for insulin injection; and a deck of Braille cards used for selecting the next site. The author, who is blind and has IDDM, describes the insulin injection process, from drawing the insulin to starting a new bottle. READING LEVEL: 12.

5
AN DM JA02420.
AC PATIENT (400).
TI Blood Glucose Testing for the Visually Impaired.
AU Carr, R.B.
SO Diabetes Self-Management. May-June 1986; pp 34-35.
AB This article describes how visually impaired individuals with diabetes can monitor their own blood glucose levels, with the advent of glucose meters containing electronic voices. Currently, there are several blood glucose meters designed for the visually impaired, including the BetaScan Audio Model, which has a built-in electronic voice, and the Glucometer II and the Accu-Check bG, which can be adapted to provide a "digi voice." The author presents detailed instructions on the use of each of these glucose-meters and on the proper procedures for obtaining accurate self blood glucose tests. READING LEVEL: 15.

6
AN DM JA02396.
AC PATIENT (400).
TI Toward Independence for the Visually Impaired.
AU Ponchillia, S.V.; Morrill, K.
SO Diabetes Forecast. 39(3): 38-42; May 1986.
AB The authors discuss products that are designed for diabetic individuals with vision problems--from a bit of blurring to total blindness. An increasing number of items are available for people who have lost some but not all of their vision, including injection aids, talking glucose monitoring devices, and special cooking products. A detailed chart outlines available products, and a resource list is included. READING LEVEL: 10.

7
AN DM DC00721.
AC PATIENT (400).
TI Click-Count U100 Insulin Syringe: A Syringe to Aid the Blind or Visually Impaired Diabetic.
CN Orange Medical Instruments, Inc.
SO Costa Mesa, CA: Orange Medical Instruments. 1987.
AV Orange Medical Instruments. 3183 Airway Avenue, Suite F; Costa Mesa, CA; 92626. (800) 527-1151 or (714) 641-5836 in CA. PRICE: $40.00.
AB The Click-Count U100 Insulin Syringe is designed for the blind and visually impaired person with diabetes who has sufficient dexterity and sense of touch to ensure accurate touch-sensitive operation. Each click on the syringe is equal to one division on the syringe barrel or 2 units of U100 insulin. Click-Count U100 syringes can be identified easily by equally spaced groves cut into the flat surface of the thumb button. The syringe allows for two modes of operation 1) measurement setting for the purpose of measuring fluids into the syringe and 2) free-travel setting for ejecting fluid from the syringe.

8
AN DM DC00306.
AC PATIENT (400).
TI Touchables.
AU [anon.].
SO New York, NY: National Association for Visually Handicapped; [n.d.].
AV National Association for Visually Handicapped; 305 East 24th Street, 17-C; New York, NY 10010. (212) 889-3141. PRICE: $9.25.
AB A device with large print on large buttons fits touch-tone telephones. Simple installation instructions are included.

9
AN DM BR01589.
AC PATIENT (400).
TI Voice of the Diabetic. Resource List: Braille Materials.
CN Braille Institute of America.
SO Los Angeles: Braille Institute of America.
AV Available from Braille Institute of America. 741 North Vermont Avenue, Los Angeles, CA 90029. (213) 663-1111. PRICE: $0.09 per page with $0.75 cents per volume for binding and labeling.
AB These materials are hand copied in thermoform Braille. One is a daily menu guide in one volume of 18 pages with menus for patients on 1200, 1800, or 2000 calories per day. A second volume of 91 pages gives meal planning exchange lists for reactive hypoglycemia. The third volume is 11 pages long and gives guidelines for general diet and meal patterns on a 1000 calorie per day diet. (AA-M).

10
AN DM BR01583.
AC PATIENT (400).
TI Living With Diabetic Retinopathy.
CN Resources for Rehabilitation.
SO Lexington, MA: Resources for Rehabilitation. 1987.
AV Resources for Rehabilitation. 33 Bedford Street, Suite 19A, Lexington, MA 02173. (617) 862-6455. PRICE: $1.75 up to 25 copies; quantity discount available.
AB A brochure for persons with diabetes provides resource information for living with diabetic retinopathy. Information is included on national organizations, publications, audiotapes, videotapes, and special audio equipment and devices for those who are visually impaired.

11
AN DM BR01539.
AC PATIENT (400).
TI Watch Those Eyes!: Diabetes Checklist Number 1.
CN Washington State Department of Social and Health Services.
SO 3 p. DSHS 22-573 (1987).
AV Available from American Diabetes Association. ADA Pamphlets, 3201 Fremont Avenue North, Seattle, WA 98103. (206) 632-4576 or (800) 628-8808. PRICE: $1.00 for 100, single copy free.
AB This pamphlet, developed by the International Diabetes Center, provides statistics on blindness and diabetes. Checklists are provided to ensure that both patient and health care provider take all steps necessary to protect the eyes and prevent blindness.

ADDENDUM: Materials and Aids for the Visually Impaired Diabetic: Update

1

AN HE 8800017.
TI Promoting Diabetes Self-Management and Independence in the Visually Impaired: A Model Clinical Program.
AU Bernbaum, M. Albert, S.G. Brusca, S.R. Drimmer, A. Duckro, P.N.
SO Diabetes Educator. 14(1):51-54, January-February 1988.
AB Staff members at the St. Louis University School of Medicine have developed a diabetes self-management program aimed at promoting independence and self esteem among visually impaired individuals with diabetes. This clinical program employs a multidisciplinary approach that includes: (1) diabetes education focused on skills and devices needed by the visually impaired for diabetes self management; (2) a monitored exercise program, individually tailored to accommodate visual, cardiovascular, and neurologic limitations; (3) group support with individual counseling as indicated; and (4) a prospective evaluation of glucose control, exercise tolerance, and psychological adjustment. Prior to the program, all staff members participated in a half-day workshop on interaction with the visually impaired conducted by rehabilitation instructors from the Missouri Bureau for the Blind. The 12-week program consists of three 3-hour sessions a week and has an enrollment of 6-10 visually impaired individuals. A handbook entitled "Managing Your Diabetes with Visual Impairment" was written for visually handicapped patients and recorded for distribution in audiocassete form to patients. At the end of each 12-week period, parameters of glucose control, general and cardiovascular fitness, and psychosocial response are compared with baseline values to assess individual progress and to provide objective data for program evaluation and modification. 29 references.

2

AN DM AV01263.
AC GENERAL PUBLIC (300). PATIENT (400).
TI Am I Blue?: Living with Diabetes and, Dammit, Having Fun! (Sound Recording).
AU Stritch, E.
SO Washington, DC: Library of Congress, National Library Service for the Blind and Physically Handicapped; 1984.
PD 1 cassette.
AV Library of Congress; National Library Service for the Blind and Physically Handicapped; 1291 Taylor Street, N.W.; Washington, D.C. 20542. (202) 287-5100. (See local telephone directory for regional library.) PRICE: Loan: Free to blind or physically handicapped individuals; available directly from regional and subregional libraries by postage-free mail.
AB An actress provides an account of her emotional reactions, including fear and anger, when she discovers that she has diabetes. She describes her struggle to maintain a normal life while coping with the demands of diabetes management. (DA-M).

3

AN DM JA02236.
AC PATIENT (400).
TI Insulin Injection Aids: Three New Products.
AU Dudley, J.
SO Clinical Diabetes. 2(4): 93; July-August 1984.
AB The author describes three insulin injection aids designed to minimize discomfort and fear and to assist those who are visually impaired or disabled. Information about sizes, method of operation, prices, and where the aids can be purchased is provided. READING LEVEL: 13.

4

AN DM JA01937.
AC HEALTH PROFESSIONAL (100).
TI Devices to Achieve Self-Care in Blind Diabetic Patients with Renal Failure.
AU Flynn, C.T.
SO International Journal of Artificial Organs. 5(3): 137-139; May 1982.
AB The purpose of the reported study was to determine whether blind people with diabetes and renal failure could achieve self-care with continuous ambulatory peritoneal dialysis (CAPD). Eleven blind patients were treated by CAPD over 3-1/2 years, and the article describes their training and the special devices used for dialysis and insulin injection. All of the blind patients succeeded in achieving self-care, although one was returned to hemodialysis after several attacks of peritonitis. The author concludes that the overall survival rate for the patients using CAPD compares reasonably well with those for patients undergoing hemodialysis and transplantation and that the rehabilitative value of self-care is an added benefit.

5

AN DM DC00513.
AC Health Professional (100). Patient (400).
TI Magni-Guide.
CN Becton Dickinson.
SO Rochelle Park, NJ: Becton Dickinson; 1982.
AV Becton Dickinson Consumer Products; P.O. Box 5000; Attn: Patient Education Department; Rochelle Park, NJ 07662. (201) 368-7300. PRICE: $4.39 suggested price. Available in local drug stores.
AB This scale magnifier and needle guide for insulin syringes magnifies the entire length of a syringe scale for easier reading and correct dosage, simplifies mixing of insulins and helps locate bubbles in the syringe. Convenient to hold and easy to use, it fits both 1cc and 1/2cc insulin syringes.

6
AN DM DC00309.
AC PATIENT (400).
TI EdnaLite's VSi Work/View Vision Systems.
AU [anon.].
SO Peekskill, NY: EdnaLite; [n.d.].
AV The EdnaLite Corporation; Vision Systems Division; 200 North Water Street; Peekskill, NY 10566. (914) 737-4100. PRICE: Write for complete information.
AB Devices combine light and magnification for reading or for work with three-dimensional materials. Portable and library models are available.

7
AN DM DC00305.
AC PATIENT (400).
TI Walters Monoculars.
AU [anon.].
SO Los Angeles, CA: S. Walters; [n.d.].
AV S. Walters; 412 West 6th Street; Los Angeles, CA 90014. (213) 622-0744. PRICE: Write for complete information.
AB Monocular devices which can be mounted on eyeglasses, hand held, or mounted on a stand are shown. The devices enable individuals with visual impairment to focus on objects such as street signs, as well as items at closer range such as a page in a typewriter.

8
AN DM DC00303.
AC PATIENT (400).
TI Visualtek: Rehabilitation Aids for the Partially Sighted.
AU [anon.].
SO Santa Monica, CA: Visualtek; [n.d.].
AV Visualtek; 1610 - 26th Street; Santa Monica, CA 90404. (213) 829-6841. PRICE: Write for complete information.
AB Data processing equipment for individuals with impaired vision can be controlled for both image size and contrast. The Typing Aid System can be used with most typewriters and word processing systems. Microfiche readers and data entry equipment are also available.

9
AN DM BK00427.
AC Patient (400).
TI Coping with Sight Loss: The Vision Resource Book.
AU Weisse, F.A.; Winer, M.
SO Newton, MA: Vision Foundation; 1980. 219p.
AV Vision Foundation, Incorporated; 770 Centre Street; Newton MA 02158. (617) 965-5877. Massachusetts Toll-free 1-800-852-3029. PRICE: $10.00; prepaid orders only; add $1.00 postage for the large print edition.
AB This compendium of goods, services, and resources for people who are blind or visually impaired contains two major sections. The first is national in scope; the second is for Massachusetts residents. Both sections contain detailed information on resource organizations and agencies, including toll-free numbers for many of the national

groups; references for aids and devices to help with such daily activities and hobbies as reading, writing, sewing, cooking, travel, and games; also gives advice in practical areas, such as tax benefits, legal rights, insurance, job opportunities, low-vision services, and how to care for tape and cassette recorders. The print edition has large, bold-face type; also available on voice-indexed cassette. READING LEVEL: 9.

10
AN DM AV00951.
AC Public (300). Patient (400).
TI Books on Tape (Audiocassette).
AU [anon.].
SO Newport Beach, CA: Books on Tape; [n.d.].
PD Cassettes - vary in length.
AV Books on Tape, Incorporated; Box 7900; Newport Beach, CA 92660. (800) 854-6758. PRICE: Catalogue: free; Cassettes: $6.50 to $15.50 for 30-day rental.
AB Full-length best seller or classic book cassettes, good for long trips and for persons with impaired vision, are available for 30 days from Books on Tape, Inc. The 130-page catalogue of rental and sale items includes language lessons and music tapes.

11
AN DM AV00437.
AC PATIENT (400).
TI Starkman's Syringe Magnifier.
AU [anon.].
SO Toronto, Canada: Starkman Surgical Supply; [n.d.].
AV Starkman Surgical Supply, Limited; 1243 Bathurst Street; Toronto, Canada; (416) 534-8411. PRICE: $5.50.
AB A clip-on syringe magnifier is designed to improve the visibility of the graduation scale and of air bubbles.

Materials and Aids for the Visually Impaired Diabetic

Selected Annotations
July 1980



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

Materials and Aids for the Visually Impaired Diabetic

Selected Annotations

Prepared by the
NATIONAL DIABETES INFORMATION CLEARINGHOUSE
Box NDIC
Bethesda, Maryland 20205
(301) 468-2162

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service National Institutes of Health
National Institute of Arthritis, Metabolism, and Digestive Diseases

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MATERIALS AND AIDS FOR THE VISUALLY IMPAIRED DIABETIC

SELECTED ANNOTATIONS

PREFACE

This bibliography has been prepared by the staff of the National Diabetes Information Clearinghouse as a resource for people with diabetes, health care providers, and others needing information on diabetes-related visual impairment. It is organized in two sections: materials suitable for public and patient education and resources for health professionals. No attempt has been made to assess the educational value of the entries, and their inclusion does not imply endorsement by the National Institute of Arthritis, Metabolism, and Digestive Diseases. If an item has been evaluated by an organization, that information is included. This listing represents an overview of materials available on this subject; it is not intended to be exhaustive.

Since the Clearinghouse does not distribute materials, please contact the source indicated. The Clearinghouse welcomes your comments, inquiries, and additional materials.

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Explanatory Notes

1. Unsigned abstracts have been prepared by NDIC staff. The sources of other abstracts are indicated by the following abbreviations:

AA	Author abstract
AFB	Abstract from American Foundation for the Blind
AVLINE	Annotation reprinted from Audiovisuals Online, National Library of Medicine
MP	Abstract from Medcom Products
UM	Abstract from the University of Michigan, Furstenberg Student Study Center. Audiovisual Resources for Diabetes Education. Ann Arbor: The University, 1978.
-M	Abstract modified by Clearinghouse staff

2. The format for bibliographic citations generally follows National Library of Medicine bibliographic practices or those of American National Standard for Bibliographic References.

3. Abbreviations Used in Citations:

[anon.]:	Author unknown
b&w:	Black and white
comp:	Compiler
[n.d.]:	Date unknown
sd.	Sound

4. Large Print: type size 16 pt. or larger; recommended by the National Accreditation Council for Agencies Serving the Blind and Visually Impaired.

MATERIALS AND AIDS FOR THE VISUALLY IMPAIRED DIABETIC

SELECTED ANNOTATIONS

PUBLIC AND PATIENT RESOURCES

Print Materials

1. The Aging Eye: Facts on Eye Care for Older Persons. [anon.]. New York: National Society for the Prevention of Blindness; 1977. 12 p.

   Changes in vision and in the eye itself that may accompany aging are described in this booklet. The cause and effects of diabetic retinopathy are discussed. Low-vision aids and first-aid tips for eye emergencies are listed.

   Price: Free/1; $8.00/100. (Must send self-addressed, stamped envelope for free copy.)

   Source: National Society to Prevent Blindness; 79 Madison Avenue; New York, NY 10016. (212) 634-3505.

2. Aids for the Diabetic with Impairment of Vision. Minneapolis: Diabetes Education Center; 1975. 4 p.

   The Diabetes Education Center of Minneapolis has compiled a descriptive list of special devices that may benefit the diabetic with impaired vision. Objects include magnifying glasses, eyeglasses, syringe magnifiers, insulin needle guides, and insulin bottle guides. Ordering information is provided.

   Price: $0.50.

   Source: Diabetes Education Center; 4959 Excelsior Boulevard; Minneapolis, MN 55416. (612) 920-6742.

3. Aquatic Recreation for the Blind. H. C. Cordellos. Washington, DC: Information and Research Utilization Center; 1976. 126 p.

   Discussion of aquatic activities that blind and partially sighted persons can participate in without increased risk to personal safety are included in this paperbound book. Topics include swimming,

diving, lifesaving, small craft safety, water skiing, scuba diving, and water games. The author speaks from a unique vantage point, because he is blind.

Price: $7.95.

Source: American Alliance for Health, Physical Education, Recreation and Dance; 1201 Sixteenth Street, N.W., Washington, DC 20036. (202) 833-5541.

4. Blindness and Diabetes. [anon.]. New York: American Foundation for the Blind; 1975. 16 p.

Helping the blind diabetic cope with his or her condition is the primary focus of this booklet. Physical and psychological complications are discussed. Developing an independent approach to the activities of daily living is emphasized.

Price: Free/1; $0.35 each/2-50 copies.

Source: American Foundation for the Blind, Inc.; 15 West 16th Street; New York, NY 10011. (212) 620-2000.

5. Diabetes and Eye Trouble. C. S. Littwin. Hackensack: New Jersey Affiliate; 1978. 4 p.

Eye problems encountered by the person with diabetes are discussed in this brochure, a transcript of one of 22 cassettes in a series entitled "Diabetes by Phone for Patients." Diabetic retinopathy is explained.

Price: $0.10.

Source: American Diabetes Association; New Jersey Affiliate, Inc.; 345 Union Street; Hackensack, NJ 07601. (201) 487-7228.

6. Diabetes as a Way of Life [Braille]. T. S. Danowski. New York: Coward, McCann & Geoghegan; 1974. 208 p.

In this braille volume, the author discusses the major aspects of diabetes including alternative philosophies of treatment and signs of satisfactory and unsatisfactory control. The appendix contains instructions for urine testing, descriptions of the action of various insulins, a roster of lay diabetes groups, and a discussion of the role of the pituitary, thyroid, and adrenal glands.

Price: Not for sale, but may be borrowed.

Source: Each Regional Library for the Blind and Physically Handicapped. See local phone book.

Source: Library of Congress; Division for the Blind and Physically Handicapped; 1291 Taylor Street, N.W.; Washington, DC 20542. (202) 882-5500.

7. Diabetes for Diabetics: A Practical Guide [Braille]. G. F. Schmitt. 4th ed. Miami: Diabetes Press of America; 1973. 242 p.

This systematic, graphic presentation of the fundamentals of diabetes includes discussions of diet, insulin, oral drugs, urine testing, and special problems such as diabetes in childhood, marriage, and pregnancy.

Price: $39.00.

Source: Iowa Commission for the Blind; Fourth and Keosauqua Way; Des Moines, IA 50309. (515) 283-2601.

8. The Diabetic at Work and Play [Braille]. B. R. Boshell. Springfield, IL: Charles C. Thomas; 1971. 195 p.

This four-volume braille edition contains information on oral drugs, diabetic camps, research, and other topics.

Price: $26.00.

Source: Iowa Commission for the Blind; Fourth and Keosauqua Way; Des Moines, IA 50309. (515) 283-2601.

9. Diabetic Retinopathy. [anon.]. Bethesda: National Institutes of Health; [n.d.]. 1 p.

Large-scale clinical studies on diabetic retinopathy supported by the National Eye Institute are briefly discussed.

Price: Free.

Source: National Institutes of Health; National Eye Institute; Information Office; Building 31, Room 6A25; Bethesda, MD 20205. (301) 496-5248.

10. Diabetic Retinopathy: A Major Cause of Blindness. [anon.]. Chicago: Illinois Society for the Prevention of Blindness; [n.d.]. 8 p.

A general description of diabetic retinopathy is followed by a discussion of its causes and warning symptoms. Treatment and control are also considered.

Price: Free.

Source: Chicago: Illinois Society for the Prevention of Blindness; 53 West Jackson Boulevard, Room 1435; Chicago, IL 60604. (312) 922-8710. American Diabetes Association, Greater Chicago and Northern Illinois Affiliate, Inc.; 6 North Michigan Avenue; Chicago, IL 60602. (312) 943-8668.

11. The Diabetic Retinopathy Study: An Evaluation of Photocoagulation Treatment. [anon.]. Bethesda: National Institutes of Health; [n.d.]. 4 p.

Evidence of the effects of photocoagulation, derived from cumulative analysis of data collected for more than two years in the Diabetic Retinopathy Study (DRS), is reported in this fact sheet from the National Eye Institute. Medical centers participating in the projected 10-year study are also listed.

Price: Free.

Source: National Institutes of Health; National Eye Institute; Information Office; Building 31, Room 6A25; Bethesda, MD 20205. (301) 496-5248.

12. Diabetic Retinopathy Vitrectomy Study. [anon.]. Bethesda: National Institutes of Health; 1976. 4 p.

Goals, design features, and eligibility requirements of the Diabetic Retinopathy Vitrectomy Study (DRVS) and a listing of participating clinical centers and physicians are presented.

Price: Free.

Source: National Institutes of Health; National Eye Institute; Information Office; Building 31, Room 6A25; Bethesda, MD 20205. (301) 496-5248.

13. The Diabetic's Insight About the Eye. [anon.]. Cleveland: Diabetes Association of Greater Cleveland; [n.d.]. 4 p.

This large-print, illustrated leaflet emphasizes the need for an awareness of possible eye problems and lists warning symptoms that require medical attention.

Price: Free.

Source: Diabetes Association of Greater Cleveland; 2022 Lee Road; Cleveland, OH 44118. (216) 371-3301.

14. Enjoying Food on a Diabetic Diet [Braille]. E. M. Meyer. New York: Doubleday; 1971. 227 p.

The four-volume braille edition contains food and diet information useful to noninsulin-dependent diabetics, persons with heart trouble, and persons with a weight problem. Recipes are included.

Price: $26.00.

Source: Iowa Commission for the Blind; Fourth and Keosauqua Way; Des Moines, IA 50309. (515) 283-2601.

15. An Evaluation of Devices for Insulin-Dependent Visually Handicapped Diabetics. K. Hynes; M. Galligan; L. Saffioti. New York: New York Association for the Blind; [n.d.]. 4 p.

Information provided in this illustrated fact sheet on devices for the visually handicapped diabetic includes (1) type; (2) design/construction; (3) size/volume availability; (4) unit calibration; (5) evaluation of device; (6) replacement parts; (7) cost; (8) vendor; and (9) catalog order number.

Price: $0.35.

Source: The New York Association for the Blind; 111 East 59th Street; New York, NY 10022. (212) 355-2200.

16. Exchange List for Meal Planning [Braille]. [anon.]. Des Moines: Iowa Commission for the Blind; [n.d.]. 11 p.

The exchange lists are available in thermoform copy for the visually impaired diabetic.

Price: $6.50.

Source: Iowa Commission for the Blind; John Taylor, Director; Fourth and Keosauqua; Des Moines, IA 50309. (515) 283-2601.

17. Exchange Lists for Meal Planning. [anon]. New York, Chicago: American Diabetes Association, American Dietetic Association; 1976. 24 p.

Information about each exchange group, the number of grams of carbohydrates, proteins, and fats for that group, and lists of substitutions are provided in this colorfully illustrated booklet. A meal plan chart and a glossary of terms are also included.

Price: $7.50 (Large print).

Source: American Diabetes Association, Iowa Affiliate; 5270 North Park Place, N.E.; Cedar Rapids, IA 52402. (319) 377-4615.

Price: $5.00 (Braille).

Source: Volunteer Braille Services, Inc.; P.O. Box 1592; Houma, LA 70361. (504) 872-9658.

18. Exchange Lists for Meal Planning [Braille]. American Diabetes Association, American Dietetic Association. New York: New York Diabetes Association; [n.d.]. 6 p.

Exchange lists for diabetic meal planning are provided in braille.

Price: Free; however, must be picked up in person.

Source: American Diabetes Association, New York Affiliate; 104 East 40th Street; New York, NY 10016. (212) 697-7760.

19. For the Diabetic: Caring for Your Feet. [anon.]. New York: New York Diabetes Association; 1977. 10 p.

Available in large print, the fact sheet lists several general rules for avoiding foot trouble and emphasizes the need to report problems to a physician or podiatrist immediately.

Price: Free/1; $8.00/100.

Source: American Diabetes Association, New York Affiliate, Inc.; 104 East 40th Street; New York, NY 10016. (212) 697-7760.

20. Helping Your Diabetic Child: A Guide to Parents and Their Children Who Have Diabetes [Braille]. J. M. Court. New York: Taplinger; 1975. 223 p.

Written for parents of children who have developed diabetes and for older diabetic children, this book provides a detailed description of the disorder and discusses diet, insulin, injections, urine tests, insulin reactions, and information to give to the school teacher. Questions commonly asked by diabetic children and their parents and the daily management of diabetes are also discussed. Appendices are included on diets, emergency foods, summer camps, and medical terms.

Price: $26.00.

Source: Iowa Commission for the Blind; Fourth and Keosauqua Way; Des Moines, IA 50309. (515) 283-2601.

21. Know Your Eyes. [anon.]. Bethesda: National Eye Institute; [n.d.]. 2 p.

This brief glossary includes terms on parts of the eye, mechanics of sight, eye disorders, and equipment and techniques.

Price: Free.

Source: National Institutes of Health; National Eye Institute; Information Office; Building 31, Room 6A25; Bethesda, MD 20205. (301) 496-5248.

22. Look 'N Cook. I. Erickson. Willimar: Maracom/Color Press; 1974. 240 p.

Scandinavian recipes are featured in this spiral-bound cookbook. Designed for the visually handicapped, the large print collection includes a chapter of recipes for diabetics. The number of exchanges per serving is provided for each recipe in this section.

Price: $6.95 plus $0.85 postage.

Source: Look 'N Cook; Box 20; Willmar, MN 56201. (612) 235-3300.

23. Mega-Diastix: For the Visually-Impaired Diabetic. Elkhart: Ames; 1977. 1 p.

The poster-size fact sheet offers information about urine testing with Mega-Diastix for the visually impaired diabetic, including: (1) description; (2) control tablets; (3) using the control tablets;

(4) how to get good results; and (5) interpretation of test results. Illustrated directions are given for urine testing and use of the glucose control tablets.

Price: Free.

Source: Ames Company; Division of Miles Laboratories, Inc.; P.O. Box 70; Elkhart, IN 46514. (219) 264-8636.

24. New Research in Diabetic Retinopathy. [anon.]. Research Resources Reporter. 3(11):5-7; November 1979.

The use of photocoagulation in the treatment of diabetic retinopathy is discussed.

25. One Diabetic's Story. [anon.]. The Healing Arts. 6(3):4-6; 1976.

The biography of a blind diabetic who works as a rehabilitation therapist is presented.

26. [Patient Education Items]. L. Fuhrer, comp. Chicago: Northern Illinois Affiliate; 1978. 21 p.

This list of items useful in diabetes education, compiled by the Northern Illinois ADA Affiliate, includes visual aids, instructional materials, audiovisual materials, periodicals, identification materials, emergency aids, nutrition information, and materials in Spanish.

Price: Free.

Source: American Diabetes Association, Northern Illinois Affiliate, Inc.; 6 North Michigan Avenue; Chicago, IL 60602. (312) 943-8668.

27. Physical Education and Recreation for the Visually Handicapped. C. E. Buell. Washington, DC: American Alliance for Health, Physical Education, Recreation, and Dance; 1973. 67 p.

The paperbound book provides information about visual impairments, practical suggestions for activities in physical education and recreation programs (with minimum modification for various age groups), and an extensive bibliography. A section on activities for the visually handicapped child is included.

Price: $3.75.

Source: American Alliance for Health, Physical Education, Recreation, and Dance; 1201 16th Street, N.W.; Washington, DC 20036. (202) 833-5541.

28. SSI for Disabled or Blind Children. [anon.]. Washington, DC: Social Security Administration; 1979. 2 p.

The classification of children's disabilities, Supplemental Security Income, and other types of assistance are discussed in the brochure.

Price: Free.

Source: Superintendent of Documents; Government Printing Office; Washington, DC 20402. (202) 783-3238.

29. Your Eyes . . . For a Lifetime of Sight. [anon.]. New York: National Society for the Prevention of Blindness; 1978. 10 p.

The function of the eye is explained. Corrective eye care and safety for diabetic retinopathy are outlined.

Price: Free/1; $8.00/100.

Source: National Society for the Prevention of Blindness, Inc.; 79 Madison Avenue; New York, NY 10016. (212) 684-3505.

30. AFB Insulin Guide.

This custom-made tool helps guide the needle into the center of the rubber stopper of the insulin bottle. It consists of an aluminum trough with a "V"-shaped notch at one end. In use, the "V" end of the trough is sterilized and the insulin vial placed at the opposite end with its stopper towards the "V." The syringe needle is then laid in the "V" and the vial pushed toward it, allowing the needle to penetrate the rubber stopper. Because vial sizes vary, an empty one must accompany the order so that the guide may be made to fit. Weight: 10 oz. (AFB-M)

Price: $6.50.

Source: American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000.

31. "C-Better" Syringe Magnifier.

The snap-on magnifier can be used to facilitate administering medicine by syringe where calibrations are difficult to read. Magnifying 2X without distortion, it is made of clear plastic and can be boiled in water, soaked in alcohol, or washed in soap and water. It does not come into contact with the needle. Snap-on wires can be bent to fit different-sized syringe barrels.

Price: $3.00 postpaid; $2.40 each/12 or more.

Source: Tri-Country Rehabilitation Center, Inc.; 4461 S.E. Federal Highway; P.O. Box 597; Stuart, FL 33494. (305) 287-7600.

32. Char-Mag Syringe Magnifier.

The snap-on magnifier assists the low-vision diabetic in reading the calibrations on an insulin syringe.

Price: $4.00 each/1-5; Write for complete information on bulk rates.

Source: Char-mag Company of Glendale, Inc; 6026 North Apple Blossom Lane; Milwaukee, WI 53217. (414) 962-6059.

33. Click/Count Syringe.

Designed specifically for blind or partially sighted diabetics, the insulin syringe has settings for two methods of operation: (1) the measurement setting for measuring fluids into the syringe (each movement of one mark will result in an audible click); and (2) the free travel setting for ejecting from the syringe. Instructions for use accompany the aid.

Price: $15.00.

Source: Hypoguard Limited; 49 Grimston Lane; Trimley, Ipswich, Suffolk, England 1P10 0SA. Felixstowe 75689.

34. Copper Sleeve Syringe Gauge.

Progenitor of many syringe-loading gauges, the device consists of a segment of copper tubing cut lengthwise to fit around the plunger of an individual syringe. The length of sleeve corresponds to the exact measurement of a specific insulin dose. This device is neither interchangeable among different syringes nor can it measure a mixed dosage or vary the dose. It can be used only with a glass syringe or a B-D disposable syringe with an attached needle. (AFB-M)

Price: $2.00.

Source: Minneapolis Society for the Blind; 1936 Lyndale Avenue South; Minneapolis, MN 55403. (612) 871-2222.

35. Devices for Visually Impaired Diabetics. A. H. Townsend. New York: New York Affiliate; [n.d.]. 8 p.

A description of devices to assist the visually impaired diabetic is given with source and price information. Aids include syringes, syringe gauges or filling devices, bottle and needle guides, a snap-on magnifier, and emergency identification.

Price: Free.

Source: American Diabetes Association, New York Affiliate; 104 East 40th Street; New York, NY 10016. (212) 697-7760.

36. Diabetes and the Eye [Videorecording]. Chicago: University of Illinois; 1976. 1 cassette; 29 min.; sd.; color; 3/4 in. (Consultation --Internal Medicine).

The effects of diabetes on the blood vessels of the eye are discussed. Diabetes is a major cause of blindness, cataracts, and refractive errors

Symptoms of diabetes in the eye, examination methods, and treatment to contain the disease are included in the program coverage. (UM)

Price: Loan: $10.00/5 days prepaid.

Source: Abbott Laboratories; Attention: Ruth Price; Abbott Park, Dept. 383; North Chicago, IL 60064. (312) 937-6100.

37. Diabetes Explained: A Layman's Guide [Sound recording]. I. Laufer, H. Kadison. New York: Saturday Review Press; 1976. 2 sides; 6 hrs.

This recording presents a detailed look at the history and nature of diabetes. Special foci include insulin, diet, symptoms of diabetes, and, particularly, progress in diabetes research.

Price: Not for sale, but may be borrowed. Order No.: RC 10416.

Source: Each Regional Library for the Blind and Physically Handicapped. See local phone book.

Source: Library of Congress; Division for the Blind and Physically Handicapped; 1291 Taylor Street, N.W.; Washington, DC 20542. (202) 882-5500.

38. The Diabetes Question and Answer Book [Sound recording]. J. Biermann. Nashville: Sherbourne Press; 1974. 205 p. 4 cassettes. Approximately 6 hrs.

Basic questions of interest to the person with diabetes are discussed. The possibility of having a full, active, and independent life-style is emphasized.

Price: $8.00.

Source: Iowa Commission for the Blind; Fourth and Keosauqua Way; Des Moines, IA 50309. (515) 283-2601.

39. The Diabetic Gourmet [Sound recording]. A. J. Bowen. New York: Harper and Row; 1970. 10 sides; 8 hrs.

Recipes oriented toward family meal plans and suggestions for the use of exchange lists are provided. Weights are included for those requiring strict control, and carbohydrate, protein, and fat contents for individual ingredients are given. Recipes and meal plans which utilize unsaturated fats are emphasized. A list of ADA affiliates is included.

Price: Not for sale, but may be borrowed. Order No.: TB 3733.

Source: Each Regional Library for the Blind and Physically Handicapped. See local phone book.

Source: Library of Congress; Division for the Blind and Physically Handicapped; 1291 Taylor Street, N.W.; Washington, DC 20542. (202) 882-5500.

40. Diabetic Retinopathy. R. L. Bergen. Hackensack: New Jersey Affiliate; 1978. 4 p.

The types of diabetic retinopathy and possible treatment for this complication are explained in this brochure, a transcript of one cassette in a series entitled "Diabetes Tapes by Phone for Patients."

Price: $0.10.

Source: American Diabetes Association, New Jersey Affiliate, Inc.; 345 Union Street; Hackensack, NJ 07601. (201) 487-7228.

41. Dos-Aid Syringe Filling Device.

This adjustable volume regulator positions the syringe plunger so that the length of the column of insulin that can be drawn into the syringe is predetermined, thereby governing the number of units of insulin. It is plastic and for use mainly with disposable U-100 syringes such as B-D Plastipak long (5/8" needle) or Jelco long. It will not accommodate B-D Lo-Dose 0.5 cc disposable insulin syringe and is considered unsuitable for Monoject 501.

In use, the disposable syringe is placed in a horizontal slot in the center of the device and the plunger pulled back as far as the plunger stop permits. The insulin vial is then positioned at the opposite end of the device and pushed toward the syringe. As the vial approaches the syringe, the needle penetrates the rubber stopper so that the syringe can be filled in the usual manner. After filling, the syringe and vial are removed and injection proceeds as prescribed by the physician, who initially sets the device for proper dosage and syringe width and locks settings firmly in place. Once set for a particular brand of syringe, the device should be used thereafter only with an identical brand/type of syringe. (AFB-M)

Price: $9.95.

Source: American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000.

42. Exchange Lists for Meal Planning [Sound recording]. New York, Chicago: American Diabetes Association, American Dietetic Association; [n.d.]. 2 hrs.

Information about each exchange group (including the number of grams of carbohydrates, proteins, and fats for each group) and lists of substitutions are provided. A meal plan and glossary of terms are also included.

Price: $5.00.

Source: Volunteer Braille Services, Inc.; P.O. Box 1592; Houma, LA 70361. (504) 872-9658.

43. HoldEase.

This plastic device is designed to hold both the insulin vial and the syringe. The insulin vial clips into one end of the guide and the syringe clips into the other. The guide can then be compressed, allowing insertion of the needle into the vial without the risk of contamination.

Price: $9.75.

Source: Meditec, Inc.; 9485 East Orchard Drive; Englewood, CO 80111. (303) 771-4863.

44. Inject-Aid.

This self-help device assists the diabetic in obtaining accurate, consistent measurement while filling insulin syringes. It is six inches long and made of high-impact plastic that provides support between the vial and syringe. Inject-Aid will accommodate long, medium, and short insulin syringes.

Price: $4.95 postpaid.

Source: George Wright Industries; 82 West Lake Shore Drive; Lincoln, NE 68528. (402) 477-1382.

45. Insulgage.

The Insulgage loading gauge enables the diabetic to load the insulin syringe safely and accurately as well as to vary the doses and measure of mixed doses. This precalibrated volume regulator is available in a large range of dosage sizes, which are marked in large print, braille, or raised numbers.

Price: $2.25 (inkprint); $2.75 (braille); $3.50 (raised numbers); $4.00 (raised numbers and braille), plus $3.00 for each order.

Source: Meditec, Inc.; 9485 East Orchard Drive; Englewood, CO 80111. (303) 771-4863.

46. Insulin-Aid.

Insulin-Aid assists the diabetic in preparing and using insulin. The aid is made of clear plexiglass with a magnetic back which can be attached to any metallic surface to hold the insulin vial in place. It can also be used to protect and store insulin at work or while traveling.

Price: $8.98.

Source: Seabee Corporation; Insulin-Aid Division; P.O. Box 457; 602 South Federal Street; Hampton, IA 50441. (515) 456-4871.

47. Insulin Dosage Monitor.

The elongated plastic strip, pre-cut by the physician at the point on the scale that corresponds to the desired insulin dosage, is for use with B-D #8409 Plastipak U-100 syringes only and is not for mixed doses. The monitor should be changed every three to four months or if the dosage of insulin is adjusted.

Price: $25.00/10.

Source: Andros, Inc.; 2332 Fourth Street; Berkeley, CA 94710. (415) 849-1377.

48. Insulin Needle Guide.

The guide fits over the top of Eli Lilly insulin bottles. Constructed of lightweight aluminum, it has a concave, funnel-shaped opening that guides the syringe needle directly into the rubber stopper. It can be used with Insulin Vial Guide. (AFB-M)

Price: $1.95.

Source: American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000.

49. Insulin Syringe.

For use with U-100 insulin, this standard short 1 cc glass syringe is fitted with a metal Tru-Set control that must be set by a physician or registered nurse to permit insulin measurement without sight. The control helps ensure that the prescribed dose of insulin will be drawn into the syringe and tends to simplify preparation for injection.

Price: $9.00.

Source: Eisele and Company, Inc.; Nashville, TN 37210. (No phone number available.)

50. Insulin Vial Guide.

With this aid, the syringe needle can be guided directly into the rubber stopper of the insulin bottle. Made of white enameled wood, it has an extended arm against which the vial is positioned plus a groove for placement of the syringe.

Price: $2.00.

Source: American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000.

51. Medi-jector.

The injection aid is used for administration of insulin without a needle. Dosage can be easily set and locked into position. A prescription from a physician is needed to purchase the Medi-Jector, which weighs 22 ounces and is seven inches long. It must be sterilized once a month. A one-year warranty comes with the aid.

Price: $695.00.

Source: Derata Corporation; 4205 Winfield Scott Plaza, Suite 1; Scottsdale, AZ 85251. (602) 994-8743.

52. The Peripatetic Diabetic [Sound recording]. J. Bierman, B. Toohey. New York: Hawthorn; 1969. 16 sides; 12 hrs.

Part I of the recording discusses eating out, traveling, urine testing, and other everyday issues. Part Two, the Diabetic Cook Book, provides recipes and helpful hints. In Part Three, the food exchange lists are explained, and information is given on alcoholic beverages, diabetic coma, and insulin reaction. Useful phrases in foreign languages are also included.

Price: Not for sale, but may be borrowed. Order No.: TB 3670.

Source: Each Regional Library for the Blind and Physically Handicapped. See local phone book.

Source: Library of Congress; Division for the Blind and Physically Handicapped; 1291 Taylor Street, N.W.; Washington, DC 20542. (202) 882-5500.

53. Scale Magnifier.

All brands of 1 cc and 1/2 cc syringes can be snapped onto this magnifier. The device optically doubles the size of scale markings equally in all directions without distortion.

Price: $1.98/suggested retail price. Available at local drug stores.

Source: Manufacturer: Monoject; Division of Sherwood Medical; Dept. T.I.; 1831 Olive Street; St. Louis, MO 63103. (314) 621-7788.

54. Syringe Magnifier.

The syringe magnifier facilitates the accurate dosage measurement of insulin for the visually handicapped diabetic.

Price: $4.00; $33.00/12.

Source: Cemco; P.O. Box 21; Scandia, MN 55073. (612) 464-3181.

Print Materials

55. Accurate Measuring of Daily Insulin Doses: Aids for the Blind Diabetic. M. S. Kappy. Arizona Medicine. 35(3):188-90; March 1978.

Devices which give the blind diabetic greater independence are discussed.

56. An Audio Urine-Glucose Analyzer for Blind Diabetics. J. May; S. Inman; D. E. Wilcox; R. S. Beckett. Diabetes. 26(3):192-5; March 1977.

A urine-glucose analyzer designed and constructed for a blind young man enabled him to test his urine and, thereby, to determine and self-administer does of insulin. The instrument and its use are described, and the results of about 20 months' experience with it are summarized. (AA-M)

57. Basement Membrane Thickness, Insulin Antibodies and HLA-Antigens in Long Standing Insulin Dependent Diabetics With and Without Severe Retinopathy. T. Deckert; J. Egeberg; C. Frimodt-Miller et al. Diabetologia. 17(2):91-6; August 1979.

The study was designed to show whether there was any relation between muscle capillary basement membrane thickness, HLA-antigens, anti-insulin antibodies, and proliferative retinopathy. Electron microscopic measurements of muscle capillary basement membrane thickness were performed on muscle biopsies from 15 insulin-dependent diabetics with severe proliferative retinopathy, 24 insulin-dependent diabetics with minimal retinopathy, and 18 age- and sex-matched nondiabetics. All the patients had had diabetes for 20 years or more. None had biochemical or clinical evidence of diabetic nephropathy. Basement membrane thickness was measured according to the methods of Siperstein and Williamson. Muscle capillary basement membrane thickening occurred in 32 of 39 diabetics, using the Siperstein method, but patients with proliferative retinopathy did not exhibit thicker basement membranes than patients with no or minimal changes in the retina. There were apparent differences in HLA-antigens between diabetics with and without proliferative retinopathy, but they did not reach statistical significance. There was no correlation between muscle capillary basement membrane thickness and the quantity of insulin antibodies. The results indicate that factors other than basement membrane thickening and genetic factors in the HLA region are responsible for the development of proliferative retinopathy. (AA)

58. The Blind Diabetic in the Rehabilitation Center: Administrative Framework. L. L. Reid. Journal of Visual Impairment and Blindness. 72(9):364-5; November 1978.

Emphasizing that blind diabetics deserve all the benefits of training, the author contends that the administrative framework for working with blind diabetics in the rehabilitation center is not very different from that required for other client populations. A flexible administrative structure and a team approach toward services are advocated. The administrator's function is seen as deriving maximum benefit from the talents of professional staff. (AA-M)

59. Blindness and Diabetes from a Psychologist's Perspective. S. Barron. Journal of Visual Impairment. 72(9):354-7; November 1978.

Juvenile and adult diabetics, because of the pressures of dealing with their illness and the ways others treat them, develop certain common traits and characteristics. These characteristics are described, along with their implications for rehabilitation and suggestions for working with the blind diabetic client and his/her family. (AA-M)

60. Blindness from Metabolic Cataract--A Presenting Manifestation of Diabetes Mellitus. A. C. Asmal; T. J. Winning; W. P. Leary; B. Dayal. South African Medical Journal. 52(7):269-70; 6 August 1977.

Metabolic cataracts in diabetic patients usually develop within the first three years of the disease and, while causing little or no initial visual disability, may progress to blindness. Findings are reported in three patients with previously normal vision who presented virtual blindness from cataract formation at the time diabetes was detected. (AA-M)

61. Chloropropamide Alcohol Flushing and Diabetic Retinopathy. R. D. Lester; A. H. Barnett; D. A. Pyke. Lancet. 1(8124):997-9; 12 May 1979.

"Mason-type" diabetics (mild diabetes which is dominantly inherited) are relatively free of retinopathy. Alcohol almost invariably causes facial flushing in these patients when they are given chlorpropamide (chlorpropamide alcohol flush, C.P.A.F.). Two hundred ninety-one non-insulin dependent diabetics were examined to see whether there was a difference in frequency of retinopathy betweeen C.P.A.F. positive and negative cases who were of comparable age and duration of diabetes. Retinopathy was commoner and often severe in C.P.A.F. negative patients. Blindness from retinopathy was almost confined to C.P.A.F. negative cases. Lens opacities, on the other hand, were equally common in both groups. Since C.P.A.F. is an inherited trait, retinopathy in non-insulin dependent diabetics is to a considerable extent, although not entirely, determined by genetic factors. (AA)

62. Coping with Diabetic Retinopathy. J. Oehler-Giarrantana. Sundial. 3(4):4-5; December 1977.

A blind psychiatric nurse describes her personal and professional insights into the special problems of the visually impaired diabetic.

63. Detection of Early Retinal Changes in Diabetes by Vitreous Fluorophotometry. J. G. Cunha-Vaz; J. R. Fonseca; J. F. Abreu; et al. Diabetes. 28(1):16-9; January 1978.

A series of 77 patients with overt diabetes and with apparently normal fundi on ophthalmoscopy and fluorescein angiography was examined by vitreous fluorophotometry. Breakdown of the blood-retinal barrier, which appears to be the earliest clinically detectable change in the retina in diabetes, was a constant finding. Quantitative measurement by vitreous fluorophotometry of the breakdown of the blood-retinal barrier could be correlated with degree of metabolic control and previous duration of diabetic disease. Significantly higher vitreous fluorophotometry values, indicating a more marked breakdown of the blood-retinal barrier, were recorded in patients under poor metabolic control than in patients whose diabetes was under relatively better control. Similarly, patients who have had diabetes for longer periods of time showed higher vitreous fluorophotometry values than those recorded in patients with diabetes of shorter duration. (AA)

64. Diabetes and the Eye: Recognizing Problems Early. M. G. Grand; L. A. Lobes. Modern Medicine. 47(3):66-79; February 1979.

Ocular complications associated with diabetes mellitus include dysfunction in refraction and accommodation, ophthalmoplegia, cataracts, glaucoma, and retinopathy. Clinical manifestations of these disorders are discussed, as well as tips on examination, management, and referral. Since diabetic retinopathy, the second leading cause of new blindness in the United States, presents the greatest risk to a patient's vision, close followup by the family physician is warranted. Yearly examinations for the first 10 years in patients with juvenile-onset diabetes are recommended along with six-month checkups thereafter in these individuals and all others with maturity-onset disease. (AA-M)

65. Diabetic Retinopathy. P. F. Palmberg. Diabetes. 26(7):703-11; July 1977.

The risk to diabetic persons of visual impairment or blindness from diabetic retinopathy is discussed in this review. The clinical stages and natural history of diabetic retinopathy are described: (1) the breakdown of the blood-retinal barrier, (2) the nonproliferative (or background) stage, and (3) the proliferative stage (with the formation of new vessels and fibrous tissue). Theories of its

pathogenesis are reviewed; hematologic abnormalities, immunologic factors, and nonpancreatic hormonal influences are among the mechanisms discussed. The treatment modes of photocoagulation, pituitary ablation, and vitrectomy are explained.

66. Diabetic Retinopathy and Pregnancy. J. Cassar; E. M. Kohner; A. M. Hamilton; et al. Diabetologia. 15(2):105-11; August 1978.

Diabetic retinopathy was found to be present in 12 out of a group of 67 diabetic patients supervised by us during 92 pregnancies, and three further pregnant diabetics were referred to us because of retinopathy. The mean duration of diabetes was 13 years (range 3-25 years). Nine patients had minimal retinopathy, two had background retinopathy, and the remaining four proliferative retinopathy. The cases with minimal retinopathy showed no progression during pregnancy. In one patient with background retinopathy there was deterioration. Of the four patients with proliferative retinopathy one showed regression during the pregnancy, two showed advance and were treated with photocoagulation (these two patients now have normal vision), while the patient with exensive retinitis proliferans, with retinal detachment in both eyes and previous photocoagulation, remained unchanged. The prognosis during pregnancy for patients with diabetic retinopathy is reasonable and has been improved by the advent of photocoagulation. (AA)

67. Diabetic Retinopathy: Nature and Extent. W. R. Coughlin; A. Patz. Journal of Visual Impairment and Blindness. 72(9):343-7; November 1978.

The authors discuss the incidence and prevalence of proliferative diabetic retinopathy in juvenile and maturity-onset diabetics. Theories of etiology and current modalities of treatment are also considered. (AA-M)

68. Diabetic Retinopathy Therapy. J. E. Harris. Sight Saving Review. 40(3):123-4; Fall 1970.

Pituitary ablation and photocoagulation are discussed as the modes of therapy most frequently employed for diabetic retinopathy.

69. Educating the Blind Diabetic About His Condition. J. J. Acton. Journal of Visual Impairment and Blindness. 72(9):366-7; November 1978.

Staffs of rehabilitation centers may assume that adult-onset blind diabetics, having had diabetes for a number of years, will possess adequate understanding of their condition. The author's experience shows that this is not usually the case. Methods for educating the blind diabetic are suggested. (AA-M)

70. Encouragement Breeds Independence in the Blind Diabetic. J. M. Schultz; M. Williams. Nursing. 76:19-20; December 1976.

In keeping with the philosophy that self-management of diabetes by blind patients need not be dangerous, several devices available to help blind diabetics with insulin injections are described. These include: (1) Hill Accurate Dosage Syringe, (2) the Copper Sleeve, and (3) the Insulgage Loading Gauge.

71. Evaluation of the Treatment of Diabetic Retinopathy: A Research Project. C. Kupfer. The Sight Saving Review. 43(1):17-28; Spring 1973.

A nationwide study to evaluate the methods (primarily photocoagulation) of treating proliferative diabetic retinopathy is described. The causes of diabetic retinopathy are illustrated and discussed. Five objectives of a clinical study are outlined.

72. Guidelines for Future Service to Blind Diabetics: Special Program Features. M. Williams. Journal of Visual Impairment and Blindness. 72(9):379-82; November 1978.

Focusing on the blind diabetic in rehabilitation center programs and on diabetes education for staff and clients, the author discusses program adaptations and modifications for blind diabetics. Staff attitudes toward working with diabetic clients are also discussed. (AA)

73. HLA Phenotypes and Diabetic Retinopathy. E. Moller; B. Persson; G. Sterky. Diabetologia. 14(3):155-8; March 1978.

The incidence of HLA antigens B8, BW15, DW3 and DW4 was found to be significantly increased in 99 patients with growth onset, insulin-dependent diabetes of more than 15 years duration. Different degrees of retinopathy were seen in 75% of the patients. No significant correlation between the presence of specific HLA alleles and the stage of retinopathy was found. We have discussed the possibility that all patients who develop diabetes have identical disease-predisposing genes, irrespective of their HLA alleles. If this was the case, the HLA phenotype would not determine the risk of developing diabetic retinopathy. (AA)

74. Hypomagnesemia, a Risk Factor in Diabetic Retinopathy. P. McNair; C. Christiansen; S. Madsbad; E. Lauritzen; et al. Diabetes. 27(11) 1075-7; November 1978.

The serum magnesium concentration was measured in 71 insulin-treated diabetic out-patients who had had the disease for 10 to 20 years.

The patients were divided into two subgroups according to the severity of their retinopathy. As a whole the patients exhibited a definite hypomagnesemia (P less than 0.001) that was most pronounced in the subgroup having the severest degree of retinopathy (P less than 0.01). The subgroups were comparable regarding known risk factors implicated in diabetic retinopathy. Thus, hypomagnesemia appears to be an additional risk factor in the development and progress of this complication. (AA)

75. Individualized Planning and the Team Approach in the Rehabilitation of the Blind Diabetic. A. Pais. Journal of Visual Impairment and Blindness. 72(9):372-78; November 1978.

The article discusses rehabilitation of the blind diabetic in a residential rehabilitation center which emphasizes a team approach. Staff members from all departments plan individual training programs for each blind diabetic client. (AA-M)

76. Injection Aids for Blind Diabetic Patients. V. A. Boyles. American Journal of Nursing. 77(9):1456-8; September 1977.

Guidelines for choosing the insulin injection device best suited to the blind diabetic's particular needs are presented. Possible case situations are discussed.

77. Meeting the Psychosocial and Rehabilitative Needs of the Visually Impaired Diabetic. J. Oehler-Giarrantana. Journal of Visual Impairment and Blindness. 72(9):358-61; November 1978.

The psychosocial and visual problems of proliferating diabetic retinopathy are discussed in terms of four stages: discovery of the diagnosis, developing awareness of the diagnosis, realization of disability, and stabilization of vision. The need for new service organization models employing preventive rehabilitation is also discussed. (AA-M)

78. Multiple Daily Insulin Injections in the Treatment of Diabetic Retinopathy. The Job Study Revisited. T. Ashikaga; G. Borodic; E. A. Sima. Diabetes. 27(5):592-6; May 1978.

Data based on the prospective study of Job et al. are reanalyzed while initial number of microaneurysms and duration of patient follow-up are controlled. The reported statistical difference in the rate of microaneurysm increase between the single- and the multiple-daily-injection groups may be due to a difference in a subgroup who had a larger number of microaneurysms initially and who were studied for a

shorter period of time. No uniform difference was observed in the results of their treatment between the groups given a single injection and those given multiple injections. While this does not invalidate the conclusions of the study, it does point out the need for greater control in conducting future studies. (AA)

79. The Natural History of Diabetic Retinopathy. M. D. Davis. The Sight Saving Review. 39(2):97-103; Summer 1969.

Diabetic retinopathy is traced through its various clinical stages and possible treatment techniques are discussed.

80. An Ophthalmologist's View of Diabetic Retinopathy. H. F. Spalter. The Sight Saving Review. 41(4):167-70; Winter 1971-1972.

Clinical problems confronting the ophthalmologist who must cope with the increasingly frequent ocular manifestations of diabetes are discussed. Recent developments in technique and technology are outlined.

81. Peripheral Retinal Ablation in the Treatment of Proliferative Diabetic Retinopathy: A Three Year Interim Report of a Randomized, Controlled Study Using the Argon Laser. B. L. Hercules; I. I. Gayed; S. B. Lucas; J. Jeacock. British Journal of Ophthalmology. 61(9):555-63; September 1977.

A randomized controlled trial is reported of 94 patients with a symmetrical proliferative diabetic retinopathy involving the optic disc. Patients were treated by a peripheral retinal ablation technique using the argon laser. Between treated and untreated eyes, a highly significant difference in mean cumulative deterioration of visual acuity and blindness was shown in all but the late stages of the disease process. The untreated eyes exhibited far worse results. The earlier photocoagulation is initiated in the proliferative process to control or eliminate optic disc neovascularization, the better the visual prognosis. (AA-M)

82. Personal and Professional Reactions to Blindness from Diabetic Retinopathy. J. Oehler-Giarrantana. The New Outlook. 237-9; June 1976.

The author, a blind psychiatric nurse, offers professional counseling to newly blinded individuals and discusses adjustment to blindness from both professional and personal points of view. She considers the major aspects of adjustment to blindness to be grief (over the loss

of vision and also about possible future complications and shortened life expectancy); reevaluation (value change, the development of realistic goals); the independence-dependence conflict; stigma (societal prejudice and ascription to blind persons of stereotyped characteristics); communication without visual cues; and identity integration or the state of self-actualization by which the individual learns to live with the disability. (AA-M)

83. Photocoagulation Reduces Diabetic Blindness Risk. [anon.]. NIH Research Advances 1977. DHEW(NIH) 78-3:61-4; 1978.

Results from a nationwide clinical trial of the use of photocoagulation to reduce diabetic blindness are presented.

84. Photocoagulation Treatment of Proliferative Diabetic Retinopathy: The Second Report of Diabetic Retinopathy Study Findings. Diabetic Retinopathy Study Research Group. Ophthalmology. 82-105; January 1978.

Data from the Diabetic Retinopathy Study show that photocoagulation reduced the rate of development of severe visual loss and inhibited the progression of retinopathy. These beneficial effects were noted to some degree in all those stages of diabetic retinopathy which were included in the study. Some deleterious effects of treatment were also found, including losses of visual acuity and constriction of peripheral visual field. The risk of these harmful effects was considered acceptable in eyes with retinopathy in the moderate or severe proliferative stage when the risk of severe visual loss without treatment was great. In early proliferative or severe nonproliferative retinopathy, when the risk of severe visual loss without treatment was less, the risks of harmful treatment effects assumed greater importance. In these earlier stages, study findings have not led to a clear choice between prompt treatment and deferral of treatment unless and until progression to a more severe stage occurs. (AA-M)

85. POB Programming and Diabetes. I. H. Leopold. The Sight Saving Review. 45(1):31-3; Spring 1975.

The two forms of diabetic retinopathy, proliferative and nonproliferative, are described. Therapeutic approaches to the problem are also mentioned. These include hypophysectomy, photocoagulation, the use of clofibrate against hyperlipemia, and acetylsalicylic acid.

86. Practical Techniques for Instructing the Visually Impaired Diabetic. S. Kolterman. Journal of Visual Impairment and Blindness. 72(9): 368-721; November 1978.

The author discusses some medical complications the visually impaired diabetic may experience, suggests how to prepare for them, and describes some aids and techniques that have proved useful. (AA)

87. Preliminary Report on Effects of Photocoagulation Therapy. The Diabetic Retinopathy Study Research Group. American Journal of Ophthalmology. 81(4):383-96; April 1976.

The clinical importance of diabetic retinopathy and the increasing use of photocoagulation in its management are reported in this preliminary article.

88. Problems and Advances in the Treatment of Diabetic Retinopathy. J. W. McMeel. Sundial. 3(4):1-2; December 1977.

Research conducted by the Eye Research Institute of Retina Foundation on diabetic retinopathy is described. Specific foci include early subtle anatomic and physiologic changes secondary to the primary metabolic defect in blood sugar metabolism.

89. Programs for Blind Diabetic Clients at a Rehabilitation Center. M. S. Williams. The New Outlook. 402-5; November 1975.

A workable diabetic program, developed in response to the individual needs of blind diabetic clients at the Minneapolis Society for the Blind's Rehabilitation Center, is discussed. Among the components of this program are ongoing cooperation with local diabetes groups, the services of a nurse consultant, use of a diabetic profile sheet, development of housing and medical resources and of teaching kits for insulin measurement and urine testing, and specific program accommodations for the diabetic. Emphasis is given to diabetes-related blindness and staff education in the area of diabetes. Accommodation to each diabetic as an individual with unique symptoms, control measures, and needs is seen as critical. (AA-M)

90. Proliferative Diabetic Retinopathy: Treatment with Xenon Arc Photocoagulation. Interim Report of Multicentre Randomized Controlled Trial. British Medical Journal. 1(6063):739-41; 19 March 1977.

One hundred patients with symmetrical proliferative diabetic retinopathy had one eye randomly chosen for treatment with xenon arc

photocoagulation while the other was left untreated as a control. Patients were subdivided into those with new vessels on both optic discs and those with only peripheral new vessels. In patients with new vessels on the optic discs, the vision of the untreated eyes deteriorated more than that of the treated eyes and the difference in deterioration was significant after one, two, and three years. There was no such difference in patients who had only peripheral new vessels. Eighteen patients had become blind in one or both eyes by the last assessment, but only one patient became blind in the treated eye without concomitant blindness in the untreated eye. Thirteen were blind only in the untreated eye. Both photographic and ophthalmoscopic examinations showed that new vessels on the disc regressed more in the treated eyes than in the untreated ones. As some forms of diabetic retinopathy are now treatable, early diagnosis and evaluation are increasingly important. (AA)

91. Rehabilitation Techniques in Severe Disability: Case Studies. J. G. Cull, ed. Springfield, IL: Charles C. Thomas; 1974. 238 p.

A study of a blind diabetic is included among the rehabilitation case studies in this book.

Price: $12.50.

Source: Charles C. Thomas, Pub.; 301-327 East Lawrence Avenue; Springfield, IL 62717. (217) 789-8980.

92. Severe Adolescent-Onset Proliferative Diabetic Retinopathy: The Effect of Pituitary Ablation. J. A. Valone, Jr.; J. W. McMeel. Archives of Ophthalmology. 96(8):1349-53; August 1978.

Proliferative diabetic retinopathy (PDR) is uncommon in patients younger than the age of 20. Since 1969, 14 adolescents with severe PDR have been identified, the youngest of whom was 16 years old and the oldest 19. The shortest duration of diabetes mellitus prior to diagnosis of PDR was eight years. Ten patients had a positive family history of diabetes. Thirteen patients had suboptimal metabolic control, while ten had some degree of azotemia, seven were hypertensive, and six had proteinuria. Ophthalmic findings included advanced and fibrous proliferation on initial classification and rapid progression to blindness, which was most frequently secondary to retinal detachment. In a small retrospective study, pituitary ablation may have offered greater preservation of vision than that observed in untreated patients. (AA-M)

93. Some Plain Talk on Diabetic Retinopathy. S. L. Fine. The Sight Saving Review. 46(1):3-9; Spring 1976.

Nonproliferative and proliferative retinopathy are illustrated and their causes and effects discussed. The relationship between retinopathy and control of diabetes, treatments currently available, and rehabilitation of the blind patient are also included.

94. Transitory Blindness During Ethanol and Phenethylbiguanide Induced Lactic Acidosis in a Subject with Diabetes Mellitus. A Case Report. P. N. Sorensen. Acta Ophthalmologica (Kobenhavn). 55(2):177-82; April 1977.

Transitory blindness is described in a diabetic patient with typical ethanol- and phenethylbiguanide-induced lactic acidosis. Blindness developed in the course of eight hours, but vision returned during treatment with IV bicarbonate, insulin, and glucose. The condition is discussed in relation to a presumed inhibition of the oxidative metabolism in the retina. (AA)

95. Vocational Rehabilitation for the Visually Impaired Diabetic. F. A. Silver. Journal of Visual Impairment and Blindness. 72(9):374-5; November 1978.

The article describes specialized services the visually impaired diabetic requires in addition to the usual vocational rehabilitation services. The diabetic must be trained in self-administration of insulin and in proper hygiene, and the correct diet must be made available. Counselor and rehabilitation center staff must cooperate in handling the diabetic's unstable physical and visual condition and must be prepared to cope daily with new complications and possible emergencies. (AA)

96. What the Health Professional Must Know About the Blind Diabetic. J. Schulz. Journal of Visual Impairment and Blindness. 72(9):376-8; November 1978.

The author believes that anyone in the medical or rehabilitation field wishing to work with the blind diabetic must understand the impact of blindness on diabetic control, the practical skills that enable the blind diabetic to maintain good control, the emotional concomitants of blindness, and the areas where it may be necessary to de-emphasize control because of the person's emotional needs. Self-administration of insulin, urine testing, diet, exercise, and other factors influencing the individual's attitude toward diabetes control are discussed. (AA-M)

97. Chronic Complications of Diabetes [Sound recording]. Madison: University of Wisconsin; [n.d.]. 1 cassette; 40 min. Accompanied by: print materials. (The Health Professional's Role in Diabetes Mellitus; No. 5).

Various complications of diabetes are discussed, including two types of retinopathy, three stages of nephropathy, and five neuropathies. A portion of the program deals with proper foot hygiene for the diabetic. Common foot lesions are categorized and surgical treatments, including amputation, are explained. (UM-M)

Price: $50.00.

Source: Drug Intelligence Publications, Inc.; 1241 Broadway; Hamilton, IL 62341. (217) 847-2504.

98. Chronic Complications of Diabetes Mellitus [Filmstrip]. Tucson: Medical Electronic Educational Services; 1975. 61 fr.; color; 35 mm. Accompanied by: 1 cassette (20 min.), 5 student notebooks, answer key, and instruction guide.

This program examines the chronic complications of diabetes, including the vascular-related complications of large vessel disease, retinopathy, and nephropathy--with appropriate preventive as well as therapeutic measures to be taken. Peripheral neuropathy, amyotrophy, microangiopathy, Kimmelstiel-Wilson disease, and retinopathy with their surgical, medical, and nursing therapies are discussed. (UM-M)

Price: Sale: $70.00 (filmstrip); $100.00 (slide). Order No.: MS-6.

Source: Medical Electronic Educational Services; 1802 West Grant Road, Suite 119; Tucson, AZ 87505. (602) 624-4401.

99. Clinical Applications of Lasers [Videorecording; Motion picture]. L. Goldman, et al. Kalamazoo: Upjohn; 1970. 1 cassette; 19 min.; sd., color; 3/4 in.

The purpose of this videorecording is to demonstrate the clinical application of lasers in dermatology, ophthalmology, and surgery. The program provides a diagrammatic review of how light originates with emphasis on the production of laser light. Laser light--light

amplified by stimulated emission of radiation--is pure light of a previously unattainable power. This intense light energy is absorbed by darker tissue and converted into heat which vaporizes tissue. Use of lasers is demonstrated in three clinical fields: in dermatology to remove a port wine stain, a tattoo, and a melanoma; in ophthalmology to coagulate vascular branches in diabetic retinopathy and repair retinal tears; and in surgery to remove brain tumors in mice and humans. (AVLINE-M)

AVLINE: Audience level: --Allied Health: graduate; continuing education. --Dental: graduate; continuing education. --Medical: undergraduate; general and specialty graduate; continuing education; --Nursing: graduate; continuing education. --Specialty: ophthalmology. Rating: Recommended. Review date: Oct. 1973. Reviewer: Association of American Medical Colleges (AAMC). Learning method: Lecture support.

Price: Loan: free/1-3 days, apply postage.

Source: Upjohn Company; Professional Film Library; 7000 Portage Road; Kalamazoo, MI 49001. (616) 323-6572.

100. Diabetes Mellitus and Its Retinopathy [Sound recording]. P. H. Forsham et al. Glendale, CA: Audio Digest Foundation; 1971. 1 cassette; 60 min. (Ophthalmology; Vol. 9; No. 3).

Side 1 of this tape deals with newer medical aspects of diabetes mellitus. Diabetes is defined and the role of obesity as an insulin antagonist is explored. Treatment of obese diabetics and specific complications in middle-aged, obese diabetics are discussed. The University Group Diabetes Program studies and the "tolbutamide scandal" are summarized. Side 2 comprises a panel discussion on the management of diabetic retinopathy. The use of pituitary ablation for proliferative diabetic retinopathy is covered as well as the treatment of very early retinopathy. Indications for use of photocoagulation therapy are cited. Treatment for glaucoma and diabetic retinopathy in the same patient is also discussed. (UM-M)

Price: Sale: $6.00.

Source: Audio Digest Foundation; 1577 East Chevy Chase Drive; Glendale, CA 91206. (213) 240-7500.

101. Diabetic Retinopathy [Slide]. A. Patz. New York: Medcom; 1971. 105 slides; color; 2 x 2 in. Accompanied by: print materials.

This slide learning system explores the evolution of diabetic retinopathy from both an academic and practical point of view. Cases

treated by photocoagulation, highlights of the retinopathic stages amenable to this therapy, and proper selection of patients are presented. The slides primarily consist of funduscopic photographs and schematic diagrams. The accompanying text provides discussion keyed to each slide. (UM-M)

Price: Sale: $105.00. Order No.: 2027.

Source: Medcom Inc.; 1633 Broadway; New York, NY 10019. (212) 765-6162.

102. Diabetic Retinopathy [Slide-tape]. S. L. Fine. Baltimore: Johns Hopkins; 1976. 11 slides; color; 2 x 2 in. Accompanied by: 1 cassette (22 min.) and booklet. (Highlights of the Topics in Clinical Medicine: Diabetes Mellitus).

Prognostic differences between proliferative and nonproliferative diabetic retinopathy are discussed in this slide-tape presentation. Metabolic control is claimed to be of no proven benefit in retarding the progress of retinopathy; however, recent studies are cited which demonstrate a relationship between good control and protection against the onset of retinopathy. Histopathologic slides illustrate retinal abnormalities. Four aspects of therapy--medical management, pituitary ablation, photocoagulation, and vitrectomy--are presented. The fundamental differences between xenon arc and argon laser photocoagulation are indicated. (UM-M)

Price: Sale: $25.00 for series set.

Source: Johns Hopkins Medical Institution; Office of Continuing Education; Audiovisual Programs; 1721 East Madison Street; Turner Auditorium Building; Baltimore, MD 21205. (301) 955-3988.

103. Diabetic Retinopathy [Videorecording]. G. P. Johnston. Fort Sam Houston, TX: Academy of Health Sciences; 1971. 1 cassette; 49 min.; sd.; color; 3/4 in.

Ophthalmological findings in diabetic retinopathy are described, and treatment by means of xenon and argon laser photocoagulation is discussed. Fundus photographs showing the various stages of this disease are included. The presentation notes that the frequency of retinopathy increases with both age and the number of years a patient has had diabetes. The rapidity of the neovascularization process is demonstrated in serial fundus photographs of several patients. Three stages in diabetic retinopathy are also depicted in fundus photographs. The criteria, use, and complications of photocoagulation by means of xenon and argon lasers are described and illustrated. (AVLINE-M)

AVLINE: Audience level: --Medical: continung education. --Specialty: ophthalmology. Rating: Recommended. Review date: Oct. 1973. Reviewer: Association of American Medical Colleges (AAMC). Learning methods: Lecture support.

Price. Free copies will be made if a blank tape is provided.

Source: Academy of Health Sciences; U.S. Army; AHS-TV Health Sciences Media Division; Fort Sam Houston, TX 78234. (512) 221-2651.

104. Diabetic Retinopathy: Attempts to Hold the Image [Videorecording]. New York: Network for Continuing Medical Education; 1975. 1 cassette; 17 min.; sd.; color; 3/4 in.

The three progressive stages of diabetic retinopathy are shown, with the classic ophthalmoscopic signs of each stage emphasized. Details of the techniques of fluorescein angiography and fluorescein cineangiography are given. Two forms of treatment for diabetic retinopathy--argon laser photocoagulation and vitrectomy--are discussed in detail. Both techniques are clearly demonstrated. A teaching quiz on diabetic retinopathy concludes the program. (UM-M)

Price: Write for complete information.

Source: Network for Continuing Medical Education; 15 Columbus Circle; New York, NY 10023. (212) 541-8088.

105. The Diabetic Retinopathy Study: A Nationwide Clinical Trial [Motion picture]. Bethesda: National Eye Institute; 1975. 13 min.; sd.; color; 16 mm.

The motion picture illustrates the fundamentals of multicenter, controlled clinical trials by portraying the first eight months of a patient's participation in the Diabetic Retinopathy Study, a nationwide, randomized test of photocoagulation treatment. Procedures and safeguards which both protect the rights and welfare of patients and assure objective evaluation of treatment are discussed. This program is highly recommended for ophthalmologists, diabetologists, or others interested in the design and conduct of clinical trials. (AVLINE-M)

AVLINE: Audience level: --Allied health: graduate. --Medical: undergraduate; graduate; continuing education. --Nursing: undergraduate; graduate; continuing education. --Specialty: ophthalmology, internal medicine, biometry, epidemiology. Rating: Highly recommended. Review date: June 1978. Reviewer: Association of American Medical Colleges (AAMC). Learning method: Lecture support.

Price: Loan: Free.

Source: National Institutes of Health; National Eye Institute; Information Office; Building 31, Room 6A25; Bethesda, MD 20205. (301) 496-5248.

106. Diagnosis and Photocoagulation Treatment of Macular Diseases: Argon Laser Photocoagulation [Motion Picture]. A. Patz. Baltimore: Johns Hopkins University; 1973. 10 min.; sd.; color; 16 mm.

This motion picture describes and demonstrates diagnosis and photocoagulation in the treatment of macular diseases. The use of photocoagulation and a review of the results are included. The program also features fluorescein and fundus photographs. (AVLINE-M)

AVLINE: Audience level: --Medical: specialty graduate; specialty continuing education. --Specialty: ophthalmology. Rating: Recommended. Review date: Oct. 1973. Reviewer: Association of American Medical Colleges (AAMC). Learning method: Lecture support.

Price: Loan: $5.00; Sale: $350.00 (16 mm); $150.00 (videotape).

Source: Conrad Berens International Eye Film Library; 246 Danforth Avenue; Jersey City, NJ 07305. (201) 332-6685.

107. Management of Diabetic Retinopathy [Videorecording]. Cincinnati: Video Digest; 1972. 1 cassette; 30 min.; sd.; color; 3/4 in. (Video Digest: Ophthalmology).

Current concepts in the management of diabetic retinopathy are reviewed in this videorecording. Ophthalmic signs, the incidence, prognosis, and therapy of diabetic macular and proliferative retinopathy are considered. Slides, photographs, and diagrams are used. Neovascularization and proliferative changes representative of diabetic retinopathy are described and demonstrated. Methods for managing this condition--medical therapy, retinal coagulation, pituitary ablation, retinovitreal surgery, and experimental insulin replacement--are discussed. Special attention is directed toward the use of retinal photocoagulation by means of the xenon arc and the argon laser. It is recommended that treatment of proliferative diabetic retinopathy be based on an assessment of the degree of vascularity, progression of the disease, visual status, and the overall medical condition of the patient. (AVLINE-M)

AVLINE: Audience level: --Medical: undergraduate; specialty graduate; specialty continuing education. --Specialty: ophthalmology. Rating: Recommended. Review date: Oct. 1973. Reviewer: Association of American Medical Colleges (AAMC). Learning method: Lecture support.

Price: Sale: $125.00.

Source: Profesional Research Inc.; 12960 Coral Tree Place; Los Angeles, CA 90066. (800) 421-8105.

108. Ocular Biomicroscopy [Motion picture]. G. M. Breinin. Jersey City: Medical Film Guild; 1969. 45 min.; sd.; color; 16 mm.

Techniques and interpretation of ocular biomicroscopy, a procedure which permits study of the living histology of the eye, are explored in this motion picture. The six fundamental examination methods, clinical indications, and results of ocular biomicroscopy are outlined. (UM-M)

Price: Loan: $5.00; Sale: $400.00 (16 mm); $150.00 (videocassette).

Source: Conrad Berens International Eye Film Library; 246 Danforth Avenue; Jersey City, NJ 07305. (201) 332-6685.

109. Ocular Fundus in Systemic Diseases [Slide]. D. G. Cogen; D. D. Donaldson. New York: Medcom; 1973. 100 slides; color; 2 x 2 in. Accompanied by: a guide.

The purpose of this slide presentation is to describe and demonstrate the appearance of the fundus as it is affected by various systemic diseases. Funduscopic views from cases of vascular disease (such as hypertension and vasculitis), metabolic diseases (diabetes and hypercholesterolemia), inflammatory diseases (toxoplasmosis and syphilis), lesions of the optic nerve (optic atrophy and papilledema), congenital lesions (hypoplasia and rubella retinopathy), and tumors (metastatic carcinoma and leukemia) are presented. Case histories, treatment, and prognosis are discussed and the pathology is described in detail. (UM-M)

Price: Sale: $105.00. Order No.: 2026.

Source: Medcom Inc.; 1633 Broadway; New York, NY 10019. (212) 765-6162.

110. Ocular Histology and Pathology, Part II: Degeneration, Malignant Melanoma, Retinoblastoma, Diabetes Mellitus Complications and Congenital Anomalies [Slide-tape]. New York: Medcom Products; 1979. 100 slides; color; 2 x 2 in. Accompanied by: 2 cassettes (43.5 min.) and narrative test booklet, slide index, and self-evaluation test.

This slide program correlates pathological specimens with clinical appearance to demonstrate prominent changes occurring in ocular disease. (MP)

Price: Sale: $105.00. Order No.: 2701.

Source: Medcom Inc.; 1633 Broadway; New York, NY 10019. (212) 765-6162.

111. Patient Interview: Diabetic with Cataracts and Prostheses [Videorecording]. Farmington: University of Connecticut; [n.d.]. 1 cassette; 21 min.; sd.; b&w; 3/4 in.

An elderly black woman with both legs amputated recounts her medical history over the past 10 years. She describes her diabetic symptoms and treatment as well as the adjustments she had to make. A nurse conducts the interview, and the attending physician describes the patient's deteriorating thenar eminence, leg prostheses, and recent cataract surgery. (UM-M)

Price: Loan: Free.

Source: University of Connecticut Health Center; Biomedical Communications (BMC); Farmington, CT 06032. (203) 674-2000.

112. A Photographic Classification of Diabetic Retinopathy [Motion picture]. New York: Cooper Laboratories; [n.d.]. 15 min; sd; color; 16 mm.

This motion picture outlines the various stages of diabetic retinopathy and provides a photographic example of each. The proposed classification scheme comprises background retinopathy; exudative retinopathy (three types) and angiopathy (three kinds); and proliferative retinopathy; neovascular retinopathy (six varieties) and glial (fibrous) retinopathy (three kinds). Prognosis and treatment of retinopathy and the operation of the fundus camera are discussed. (UM-M)

Price: Loan: Free. Order No.: ZNS21.

Source: Association Films, Inc.; 600 Grand Avenue; Ridgefield, NJ 07657. (201) 943-8200.

113. Surgical Treatment of Diabetic Retinopathy: A Round Table Discussion [Sound recording]. Glendale, CA: Audio Digest Foundation; 1973. 1 cassette; 60 min. (Ophthalmology; Vol. 11; No. 19).

Problems of living with retinal hemorrhage and possible side effects of photocoagulation treatment for diabetic retinopathy are discussed. The importance of controlled medical management of diabetes is stressed. Other topics include methods of therapy for diabetic retinopathy,

retinopathy in the pregnant diabetic, spontaneous regression of proliferation of diabetic retinopathy, and contraindications to photocoagulation. (UM-M)

Price: Sale: $6.00.

Source: Audio Digest Foundation; 1577 East Chevy Chase Drive; Glendale, CA 91206. (213) 240-7500.

114. Systemic Disease in the Eye [Slide-tape]. P. R. Lichter; L. Graham. Ann Arbor: University of Michigan; 1976. 52 slides; color; 2 x 2 in. Accompanied by: 1 cassette (12 min.) and print materials. (Vision: An Individualized Approach to the Study of Ophthalmology: Media Library; No. 362).

This slide-tape discusses the role of the eye in systemic disease. Ocular manifestations of various forms of arthritis and inflammations, erythema, vitamin A deficiency, diabetes mellitus, and hyperthyroidism are considered. (UM)

Price: Loan: $25.00/week.

Source: University of Michigan; Audiovisual Education Center; 416 Fourth Street; Ann Arbor, MI 48103. (313) 764-5360.

Price: Sale: $75.00 plus $5.00 handling.

Source: University of Michigan; Department of Postgraduate Medicine, Media Library; Towsley Center for Continuing Medical Education; Ann Arbor, MI 48109. (313) 765-2024.

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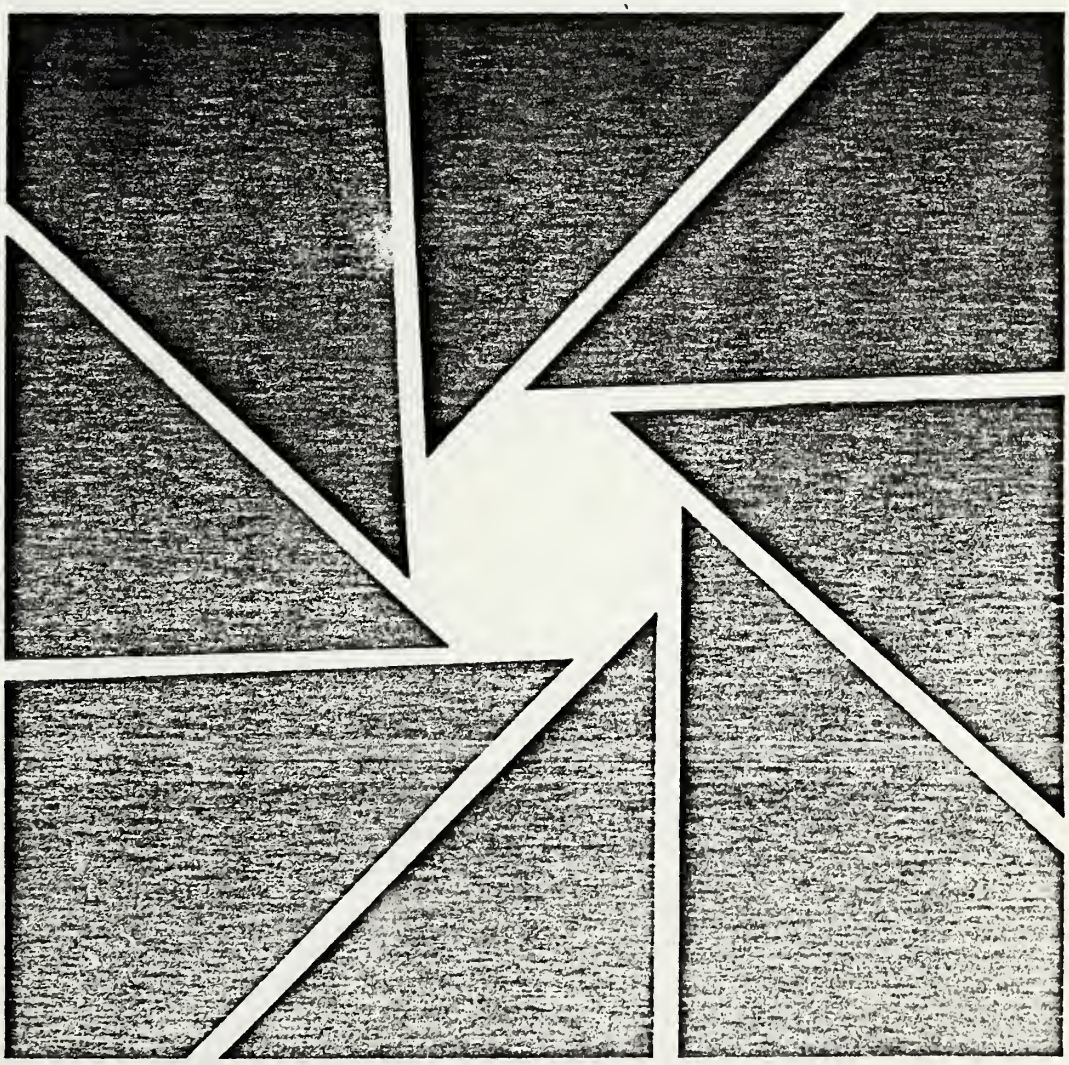
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National Institute of Arthritis, Metabolism, and Digestive Diseases
National Institutes of Health
9000 Rockville Pike
Bethesda, Maryland 20205

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Materials and Aids for the Visually Impaired Diabetic



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

Supplement to

MATERIALS AND AIDS FOR THE VISUALLY IMPAIRED DIABETIC

June 1986

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National Diabetes Information Clearinghouse
Box NDIC
Bethesda, Maryland 20892
(301) 468-2162

INTRODUCTION

This supplement to the bibliography "Materials and Aids for the Visually Impaired Diabetic" lists items added to the NDIC collection since 1981. Please refer to the Preface of the original bibliography for a discussion of the format and scope which also is followed in this supplement.

Each citation in the supplement is organized according to the following order:

- Title and author.
- Publisher.
- Physical description of audiovisual materials (if appropriate).
- Producer's address and the price of the item.
- Summary or description of the item.

Author and title indices to all materials listed in the supplement are included at the end.

The citations in this supplement are not an exhaustive list of materials and aids for visually impaired people. Other sources for information about materials and aids are listed below.

- ABLEDATA is a data base that contains information about rehabilitation equipment and supplies. ABLEDATA is a service of the National Rehabilitation Information Center at The Catholic University, Washington, D.C. The data base also is available through BRS, a data base vendor. Many public, university, and medical libraries subscribe to BRS; the service also is available to home computer users. ABLEDATA information also is provided through a nationwide system of information brokers. For the name of an information broker in your area, please contact Marian Hall at the following address.

  ABLEDATA
  4407 North Eighth Street, N.E.
  Washington, D.C. 20017
  (202) 635-6090

- Audiovisual Resources for Diabetes Education, Fifth Edition, is a guide to nonprint diabetes educational materials for health professionals, patients, and the public. Each listing provides information about the subjects covered in the program, the name

of the producer, and the cost and availability of the program. The catalog describes materials produced since 1972 and distributed by both commercial and nonprofit sources. Materials listed are available for purchase, rental, or loan from a national distribution source.

Learning Resource Center
University of Michigan Diabetes
Research and Training Center
1135 East Catherine Street
Ann Arbor, Michigan 48109
(313) 763-6770

- The Library for the Blind and Physically Handicapped, Library of Congress, is a free library service for people who are unable to read or use standard printed materials because of visual or physical impairment. The service is provided in cooperation with a network of regional and local libraries. Books and magazines in recorded form (talking books) or in Braille are delivered to eligible readers by postage-free mail and are returned in the same manner. Specifically designed phonographs and cassette players also are loaned free to people who borrow talking books.

  The Library for the Blind and Physically Handicapped
  1291 Taylor Street, N.W.
  Washington, D.C. 10542
  (202) 287-5100

- AVLINE is a data base produced by the National Library of Medicine (NLM). The data base contains over 10,000 audiovisual programs related to the health sciences and represents all audiovisuals cataloged by NLM since 1975. AVLINE citations include motion pictures, videocassettes, and slide/cassette and filmstrip/cassette programs available from over 500 different distributors. The data base is updated weekly. AVLINE is available through NLM or many medical libraries.

  The National Library of Medicine
  Audiovisual Resource Section
  9600 Rockville Pike
  Bethesda, Maryland 20205
  (301) 496-4244

PROFESSIONAL RESOURCES

Print Materials

1
Abnormal Color Vision and Reliable Self-Monitoring of Blood Glucose.
Lonbrail, P.; Cathenlineau, G.; et al.

Diabetes Care. 7(4): 318-321; July-August 1984.

Color vision was assessed in 103 insulin-dependent diabetic patients using the Farnsworth-Muensell 100 Hue test. All showed color vision impairment. Thirty-four had true dyschromatopsia, and 22 suffered from titanopia or other axial defects. The authors evaluated how accurately diabetic patients could monitor their own blood glucose by asking them to read a series of 30 precalibrated reagent strips without a meter. Patients with axial defects performed least well regardless of 100-Hue scores. Reading accuracy of patients with no axial defect was strongly correlated to 100-Hue scores, although patients having dyschromatopsia were consistently hesitant about their readings. Results suggest that self-monitoring of blood glucose without a meter is indicated only after color vision has been examined by the 100-Hue test. Self-monitoring without a meter should be avoided with patients suffering from axial defects or having unsatisfactory 100-Hue scores. (AA-M).

2
Aiding the Person Who Is Visually Impaired from Diabetes.
Cleary, M.E.

Diabetes Educator. 10(4): 12-23; Winter 1985.

This article provides information about the effects of diabetic retinopathy on vision, the difficulties experienced by persons with both diabetes and visual impairment, and suggestions for coping. The author stresses the need to provide assistance in the following areas: restoring and maintaining personal independence; techniques for daily living such as taking medication, cooking, eating, and grooming; restoring financial security, communication skills, and mobility; and training the other senses. The importance of the diabetes educator in providing information, motivation, and support to people with diabetic retinopathy is stressed. References and a resource list provide sources of further information about topics covered in the text.

3
Devices for Visually Impaired People with Diabetes.
Townsend, A.

Practical Diabetology. 4(4): 1-3, 24; July-August 1985.

The author presents descriptions and assessments of several devices that enable blind people with diabetes to measure and administer their insulin safely. Types of equipment included are precalibrated syringe loading gauges, adapted insulin syringes, syringe magnifiers, and syringe needle guides. Two blood glucose meters also are described, but the article cautions against their use by blind people unless training and direct supervision by health professionals are provided. The price and supplier's name and address are listed for each device mentioned in the article.

4
Diabetes: Some Physiological Considerations for the Blind Person.
Connors, R.M.

Aids and Appliances Review. 6: 2-5; June 1982.

Focusing on insulin-dependent diabetes mellitus, this article presents some simple facts and illustrations designed to contribute to an overall understanding of the physiology of the disease and to provide a framework for subsequent material devoted to the rehabilitation of the blind person with diabetes. Figures compare insulin/blood sugar levels in nondiabetics and in people with uncontrolled diabetes and the effects of single- and multiple-dose insulin therapy. The author notes that the problems facing a visually impaired person with diabetes are how to accurately measure insulin doses and monitor blood sugar levels and concludes that technological advances have almost solved these problems.

5
Diabetic Control: Equipment for Use with Vision Loss.
Johnson, D.L.; Connors, R.M.; et al.

Aids and Appliances Review. (6): 1-28; June 1982.

This journal issue describes and explains basic equipment available for insulin administration, urine testing, and self blood glucose monitoring as well as the techniques that can be used by blind or visually impaired people with diabetes. The issue includes a discussion of diet and exercise and the role of the rehabilitation center in serving the visually impaired person with diabetes. A blind man with diabetes recounts his feelings about his diabetes and blindness, his adjustment to these conditions, and his ability to successfully monitor his urine or blood glucose levels.

6
Diet and Exercise Management: Diet.
McGillivray, R.; Gast, M.; eds.

Aids and Appliances Review. 6: 22-24; June 1982.

After briefly reviewing the basis of the diabetic diet and the need to use exchange lists in meal planning, the editors provide a partial listing of diabetic cookbooks and cookbooks adaptable to the diabetic meal plan that are available in Braille, on cassettes or disks, or in large-print editions.

7
Directory of Agencies Serving the Visually Handicapped in the U.S. 22nd. ed.
American Foundation for the Blind.

New York, NY: American Foundation for the Blind; 1984. 547p.

American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000. PRICE: $20.00.

This directory provides current information about state, private, and voluntary organizations that offer services to blind and other visually handicapped people. It includes state-by-state listings of infant and preschool programs, educational services, library services, radio reading and information services, professional preparation programs, and low vision services as well as rehabilitation and specialized (e.g., medical research) agencies and programs.

8
Equipment for Urine Glucose Analysis.
McGillivray, R.; Gast, M.; eds.

Aids and Appliances Review. 6: 19-20; June 1982.

This article identifies the difficulties a visually impaired person has in using the four major commercial reagent products available for urine glucose analysis. The article also discusses audible urine analyzers, electronic devices that can sense the specific color changes on reagent material and audibly signal the specific color. The use of the Uricator is described in detail.

9
Evaluation of Hypo-test, a Semiquantitative Audio Urine-Glucose Analyzer for Blind Diabetic Patients.
Birch, K.; Sestoft, L.; Marshall, M.

Diabetes Care. 5(4): 430-432; July-August 1982.

The study objective was to evaluate the Hypo-test, a semiquantitative urine test meter that automatically reads glucose values from a reagent strip and communicates the results to the blind patient by buzzer tones. It was tested for accuracy and reproducibility against a laboratory glucose method and for ease of operation by two blind people with diabetes. From a total of 64 urine glucose measurements, 42 results were within the specified range; 22 results (34 percent) were outside the range and therefore classified as inaccurate. When the laboratory urine-glucose concentrations were greater than 0.75 percent, Hypo-test results tended to be too low. The reproducibility was ideal at low and medium urine glucose concentrations but unacceptable at high concentrations. The sensitivity of the meter to delays or decreases in the prescribed procedure time was pronounced. The two test subjects reported that the Hypo-test was easy to operate. (AA-M)

10
For Visually Impaired Diabetics.
Herget, M.

American Journal of Nursing. 83(11): 1557-1560; November 1983.

Devices are identified that help a visually impaired or blind person with diabetes to administer insulin and monitor blood glucose levels. Devices include syringe magnifiers, dose guides, needle guides, vial and/or syringe holders, and devices for urine and blood glucose monitoring. Insulin administration tips are provided. Information is presented in a chart that includes brand name, function, cost, and manufacturer.

11
Home Glucose Monitoring for the Visually Impaired Diabetic.
Oehler, J.W.

Aids and Appliances Review. 6: 20-22; June 1982.

The author recommends the Chemstrip bG system, manufactured by Bio-Dynamics, as the easiest system for a person with low vision to use in initiating a program of home blood glucose monitoring. Some reasons cited are that Chemstrips do not require a meter; the test is portable and easy to perform, needing no water wash; and the strips remain stable and can be saved for later reading by others. The article also discusses the advantages of reflectance meters or home blood glucose monitoring machines and of home blood glucose monitoring itself. Available equipment is described, and references are identified.

12
How to Encourage Independence in Blind Diabetics.
Curran, J.

Beta Release. 5(3): 4-8; March 1981.

Criteria for insulin injection aids for a blind or visually impaired person with diabetes are accuracy of dosage measurement, readability by touch, adjustability by touch, ease of cleaning, and accuracy and safety in measurement of mixed dosages. Products reviewed are the Insulin Dosage Monitor, Morris Watts Insulin Gauge, Insulgage Gauges, Canadian Diabetes Association Syringe Stop, Needle Guide (two models), Syringe Scale Magnifiers, and Syringe Magnifier. Methods of urine testing that are available include Mega Diastix for the visually impaired who retain good color perception and the touch fermentation test, which can be used by blind people but gives only approximate results.

13
Independent Diabetes Management for the Blind Diabetic Person.
Price, J.; McCormick, S.

Beta Release. 9(3): 13-18; Fall 1985.

The authors produced this article in response to requests for information about aids and adaptive techniques that allow the blind person with diabetes to continue achieving the best control possible. Detailed advice is given to facilitate insulin measurement and injection and self blood glucose monitoring by visually impaired patients. Special devices for the blind are described and illustrated.

14
Issues and Obstacles in Self-Management of the Blind Diabetic Person.
McCormick, S.

Beta Release. 9(3): 11, 23; Fall 1985.

The author discusses the emotional stresses precipitated by diabetes and examines the many difficulties experienced by people with diabetes who are blind or severely visually disabled. Three obstacles to meeting the educational needs of such patients are described: health professionals with inadequate knowledge of blindness but good knowledge of diabetes, professionals with good knowledge of blindness but inadequate knowledge of diabetes, and limited or no information about aids for the blind.

15
Managing the Elderly Patient with Diabetes.
Miller, L.V.

Clinical Diabetes. 3(4): 74-76, 90; July-August 1985.

Guidelines are presented for managing diabetes in the elderly patient by diet modification, oral hypoglycemic agents, and insulin therapy. Special issues, including caring for people with impaired vision or hearing, foot care, and infections, are addressed.

16
Measuring and Injecting Insulin: Equipment and Techniques for Use by Blind or Visually Impaired Diabetics.
Schulz, J.

Aids and Appliances Review. 6: 8-10; June 1982.

Equipment and techniques available for use by blind or visually impaired people with diabetes are described. The article provides guidelines for selecting a particular device to aid in self-measurement of insulin. Instructions are provided for drawing and measuring insulin using the Insulgage loading gauge and Holdease for injecting the insulin.

17
Modifications on Insulin Techniques for the Visually Impaired or Blind Diabetic.
Raftary, A.

Aids and Appliances Review. 6: 10-11; June 1982.

The author recommends the templet technique for measuring insulin for the visually impaired person with diabetes. Instructions are provided for making the templet. The advantages of the staple templet are reviewed. The techniques for drawing up insulin and procedures for mixing two insulins in a single dose are explained. The article includes specific guidelines for instructing the blind patient.

18
Neuropsychological Findings in Diabetes Mellitus.
Skenazy, J.A.; Bigler, E.D.

Journal of Clinical Psychology. 40(1): 246-258; January 1984.

Thirty-nine visually impaired and nonvisually impaired people with insulin-dependent diabetes were compared with a nonneurologic chronically ill group and a healthy group on the Halstead-Reitan Neuropsychological Test Battery and the Wechsler Adult Intelligence Scale. The diabetic groups performed similarly to each other and worse than the other two groups on somatosensory examination, motor strength, and motor speed tasks. Impairment was more consistent and pronounced among men with diabetes than among women with diabetes. The nonvisually impaired diabetic group performed worse than the other 2 groups on Trail Making Tests and Performance IQ. The performance of the diabetic group was similar to that of the chronic illness group and worse than that of the healthy group on the Category Test. In the people with diabetes, impaired neuropsychological performance tended to be associated with severity of disease and number of severe hypoglycemic episodes. People with diabetes demonstrated neuropsychological impairment on tasks that required visual and motor efficiency and somatosensory discrimination. Cognitive skills and memory remained intact among most diabetic subjects despite greater risks for electrolyte imbalance, neurotransmitter deficiencies, and coma. (AA-M)

19
A Physician's Guide to Diabetes-Related Community Services.
Levine, H.

Practical Diabetology. 2(4): 15-16, 18-19; July-August 1983.

This guide identifies community services for emotional counseling and support, patient education, and dietary counseling. Federal and state resources for financial assistance, employment, and vocational training are described. Local and national services for people with visual impairments are discussed.

20
The Prevention and Treatment of Five Complications of Diabetes: A Guide for Primary Care Practitioners.
National Diabetes Advisory Board.

Bethesda, MD: National Diabetes Advisory Board; [1983.]. 67p.

Division of Diabetes Control; Centers for Disease Control; 1600 Freeway Park; Room 317; Atlanta GA 30333. (404) 329-2310. PRICE: Free; bulk orders only. Single copies are available from the National Diabetes Information Clearinghouse; Box NDIC; Bethesda, MD 20205. (301) 468-2162. PRICE: Free.

Designed to assist the primary care practitioner in the daily management of patients with diabetes, this manual presents recommendations for the detection, prevention, and treatment of five major complications of diabetes: visual impairment, adverse outcomes in pregnancy, foot and kidney problems, and acute hyperglycemia and ketoacidosis. Appendices provide patient education materials, sample office guide forms, additional information about diabetes classification, and a list of suggested readings.

21
Proceedings of a Seminar on CAPD, Diabetes and Blindness, Des Moines, Iowa, May 21, 1982.
CAPD Clinic, Iowa Lutheran Hospital.

Des Moines, IA: Iowa Lutheran Hospital; 1983. 60p.

CAPD Clinic; Iowa Lutheran Hospital; University at Penn; Des Moines, IA 50316. (515) 283-5612. PRICE: Free.

The purpose of this seminar was to discuss diabetes mellitus and the complications of renal failure and blindness in relation to continuous ambulatory peritoneal dialysis (CAPD). Seminar topics identify the effects of diabetes on the kidney and the eyes; compare treatment modalities available for the diabetes patient with end-stage renal disease; describe CAPD principles, history, current statistics, and reimbursement regulations; discuss the clinical management of intraperitoneal insulin in diabetes patients on CAPD; and discuss the ability of the blind patient to manage CAPD training methods and clinical results.

22
Rehabilitation of the Blind.
Oehler, J.W.

Today's Topics in Diabetes: Joslin Research Bulletin. 4(2): 8-11; Fall 1981.

Coping with full or partial vision loss from diabetic retinopathy is discussed as a process of "identity integration." The process directs attention to the need for support and for learning techniques to handle the reactions of others; the need to be conscious of the dependence-independence fluctuation and realistic about limitations; and the need for patience, time, and understanding in trying to change a lifestyle to accommodate a physical disability. The person with visual loss can find that career, household, and school responsibilities can be continued with special assistance.

23
Resource Guide: Devices for Insulin Administration.
McGillivray, R.; Gast, M.; eds.

Aids and Appliances Review. 6: 12-18; June 1982.

This guide describes devices for the nonvisual measurement of insulin and provides a guide to insulin gauges, needle guides, and syringe magnifiers. The guide includes photographs, descriptions, and ordering information along with comments about the utility of the available equipment under various conditions.

24
Special Devices and Equipment for the Visually Impaired Diabetic.
Campbell, R.K.

American Pharmacy. NS 21(1): 30-35; January 1981.

This article offers a compendium of special devices and useful techniques to aid the blind or visually impaired person with diabetes. Urine testing materials and methods, injection aids for the blind, and products for the treatment of hypoglycemia and for foot care are identified and described. The author also describes retinopathy and several reading devices for the visually impaired. The role of the pharmacist as a potential resource person who is familiar with these products and devices and who offers patient education is emphasized. Ordering information as well as resource organizations are included.

25
Techniques for Foot Care by the Visually Impaired Diabetic.
VanSon, A.R.

Aids and Appliances Review. 6: 24-25; June 1982.

The author offers step-by-step foot care instructions designed to encourage independence and self-management in visually handicapped individuals with diabetes mellitus. The article identifies the care that podiatrists and family members can provide and includes instructions for improving circulation in feet and legs.

26
Use of Tactile Techniques for Self-Monitoring of Blood Glucose in Visually Impaired Patients with Diabetes Mellitus.
Prior, J.C.; Alojado, N.C.; et al.

Diabetes Care. 7(4): 313-317; July-August 1984.

Twenty-eight patients with insulin-dependent diabetes mellitus, legally blind as a result of proliferative retinopathy, were recruited into a program designed to teach and evaluate tactile methods for self blood glucose monitoring (SBGM). Their degree of visual impairment ranged from "blind" to "able to read large print." Tactile methods taught included techniques with wipe-off strips using the opposite hand as a guide, operation of timing devices by touch, and special methods for labeling and storing strips. Methods with wash-off strips employ the fingers as a guide in directing the wash water. The accuracy of tactile methods was documented. Clinical parameters of glucose control improved in patients with adequate data after 6 months of tactile SBGM. Glycosylated hemoglobin in 17 patients decreased. Patients experienced significantly fewer insulin reactions and low blood glucose readings as well as a lowering of mean blood glucose values. (AA-M).

27
Visual Function After Pan-Retinal Photocoagulation: A Survey.
Russell, P.W.; Sekuler, R.; Fetkenhour, C.

Diabetes Care. 8(1): 57-63; January-February 1985.

Thirty-five patients with diabetes who had undergone pan-retinal photocoagulation were surveyed to determine the frequency and severity of visual difficulties experienced by them. Among the most frequent problems were difficulty adjusting to dim lighting, difficulty adjusting to bright lighting, and trouble in distinguishing dark colors. Judging distances, negotiating stairways, and avoiding obstacles were reported to be more difficult since the laser treatment. According to a correlation analysis, the difficulties encountered in some important tasks, such as driving in the daytime, were highly related to visual acuity. However, many of the problems reported most frequently and many of the problems whose frequency had increased the most since the laser therapy were not related to acuity. In spite of their many visual complaints, the patients expressed very positive attitudes toward the photocoagulation treatment. (AA).

28
Psychological Issues Related to Blindness Caused by Diabetic Retinopathy (Videorecording).
Oehler, J.W.

Milwaukee, WI: Oehler, J.W., University of Wisconsin, Milwaukee; 1981.

2 cassettes; 180 min; sd; col; 3/4 in; and print materials.

Dr. Judith W. Oehler; University of Wisconsin, Milwaukee; School of Medicine; 1909 East Hartford Avenue; Milwaukee, WI 53201. PRICE: Sale: $200.00; loan: $80.00 (for both cassettes); sale: $125.00; loan: $50.00 (individually).

This program discusses the problems of patient adjustment to vision loss. The topics covered include pathophysiology of diabetic retinopathy, patient reactions to diminishing vision, reactions to the threat of developing other diabetic complications, and the role of various health professionals in the rehabilitation of people with visual impairments. Six aspects of adjustment are also examined: grieving, value change, the independence-dependence conflict, coping with stigma, learning to communicate without visual cues, and acceptance versus entity integration of the visual loss. The material is presented in two parts: the first as a lecture and the second in a question-and-answer format. (UM).

29
Aids for the 80's: What They Are and What They Do.
Mellor, C.M.

New York, NY: American Foundation for the Blind; 1981. 36p.

American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000. ORDER NO: ISBN 0-89128-103-7. PRICE: Single copy free.

This booklet offers an analysis of the proliferating technology of visual aids. After an introductory chapter outlining the history of sensory aids up to the 1980's, the kinds of devices currently available are discussed. They are: travel aids (Russell Pathsounder, laser cane, Sonicguide, Mowat Sensor); reading aids (Kurzwell Reading Machine, Optacon, Stereotoner, speech compressors, "talking" calculators); low-vision aids (magnifiers, field expanders, telescopic aids, bioptic systems, closed circuit television); and the latest developments in Braille (Braille without paper, Braille terminals). The advantages and disadvantages of each aid are given, and their adaptation for use by children is also described.

30
Facts About Blindness and Visual Impairment. Rev ed.
Grayson, D.

New York, NY: American Foundation for the Blind; 1981. 12p.

American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2000. PRICE: Single copy free; $0.20/2-50; $0.18/51-100; $0.15/101-500.

This pamphlet defines visual impairment and blindness, presents incidence data, reviews causes of blindness both in the United States and in other areas of the world, and provides information about education and rehabilitation. Resource organizations and agencies at the national and international levels are identified, and state agencies and addresses are given for finding direct services.

31
Making Life More Livable: Simple Adaptations for the Homes of Blind and Visually Impaired Older People.
Dickman, I.R.

New York, NY: American Foundation for the Blind; 1983. 89p.

American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. PRICE: $5.00. (212) 620-2000.

Ideas for adapting the home to the needs of older blind and visually impaired people are presented with emphasis on low-cost, readily available modifications. A room-by-room discussion identifies specific problems and gives ideas for alleviating them. Appendices examine sensory loss in older people and list organizations to contact for more information.

32
Products and Information for the Visually Impaired.
Dinsmoor, R.S.

Diabetes Self-Management. Summer 1985. pp. 18-21.

A resource guide directs visually impaired people with diabetes to information, training, books and magazines, household products, diabetes-related aids and devices, and games specifically designed for them.

33
Products for People with Vision Problems.
American Foundation for the Blind.

New York, NY: American Foundation for the Blind; 1984. 120p.

American Foundation for the Blind; Customer Service Division; 15 West 16th Street; New York, NY 10011. (212) 620-2000. PRICE: Free.

This large-print catalog for people with vision problems offers products in the following categories: watches, clocks, and timers; canes and accessories; recreational and personal items; preschool, kitchen, household, writing, and sewing supplies; low-vision aids; medical equipment; tools and instruments. Each item is pictured. The catalog includes instructions for ordering by mail or telephone and a price list supplement.

34
Project Pelion.
Oehler, J.W.

Diabetes Forecast. 34(6): 26-29, 47; November-December 1981.

Project Pelon, a project to challenge the stereotype of helplessness and to emphasize the potentials of people with disabilities, is described by one of the participants--a woman who is blind and has diabetes. On July 1, 1981, seven blind people, two deaf people, a person with epilepsy, and a person with a below-the-knee amputation teamed with a complement of experienced mountain climbers to climb Mount Rainier. The details of the climb are recounted.

35
To See or Not to See? A Patient's Guide to Diabetic Retinopathy.
Schoessow, D.K.; Maggiano, J.M.; eds.

Anaheim, CA: D.K. Schoessow; 1982. 62p.

To See or Not to See; 4237 East Alderdale Avenue; Anaheim, CA 92807. PRICE: $3.95/individual copy; contact for information on bulk and professional orders.

Printed in large type, this guide explains diabetic retinopathy and its treatment from the perspective of a person with retinopathy. The author recounts personal experiences while offering detailed discussions about eye examinations, diagnosis and early treatment, progression of the condition, laser treatment, and surgery. Other sections include discussions of misconceptions about diabetes and its control, use of medications, the role of stress and emotions in the control of diabetes, and complications affecting the eyes.

36
What, Where, When: A Resource Handbook for the Blind and Visually Inpaired, Their Families and Friends, and the General Public.
Loeb, G.E.

Silver Spring, MD: Gladys E. Loeb Foundation; 1982. 182p.

Also available in cassettes: regular or voice-indexed.

The Gladys E. Loeb Foundation, Incorporated; 2002 Forest Hill Drive; Silver Spring, MD 20903. (301) 434-7748. PRICE: $10.00.

This handbook compiles and describes resources for blind and visually impaired people, their families and friends, and the general public. It includes information about visual aids and appliances; Federal, state, and local government aid; books and magazines; Braille equipment and repairs, instructions, and services; special recreation and sports opportunities; transportation and travel assistance; training programs for crafts and skills; homemaking help; law and legal services; organizations and agencies; rehabilitation; safety; and a variety of other services.

37
You, Your Eyes, and Your Diabetes.
Johnson, D.L.

Winnetka, IL: Hadley School; 1981. 54p.

The Hadley School for the Blind; 700 Elm Street; Winnetka, IL 60093. (312) 446-8111. PRICE: Free.

Printed in large type, this self-instructional manual presents essays and followup questions to help the person who has diabetes and a visual impairment adjust to loss of vision and to resume a familiar and comfortable lifestyle. Divided into six areas, each section encourages use of touch, smell, and visual aids and a positive attitude. Topics include a history of diabetes; managing insulin, diet, and exercise; learning everyday skills and preventive medicine; and reviewing personal and social issues. The experience of a young woman's adjustment to her diabetic condition is recounted, and references and resource groups are given.

38
BetaScan Audio Model Self Blood Glucose Meter.
Orange Medical Instruments.

Costa Mesa, CA: Orange Medical Instruments; 1984.

Orange Medical Instruments; 3183 Airway Avenue; Suite F; Costa Mesa, CA 92626. (714) 641-0674 or (800) 527-1151. PRICE: $400 includes battery charger, confidence strips, operation manual, OMI strip guide.

The portable microprocessor measures glucose in whole blood and is designed for people with visual impairments. Results are indicated visually and orally by a voice synthesizer. Testing takes about 2 minutes to complete. The 10-ounce unit is battery operated, contains a builtin timer with automatic countdown, and calibrates automatically with each reagent strip. Confidence strips are used to check instrument performance. The meter can be used with Beta Scan Reagent Strips or Ames Dextrostix.

39
Char-Mag Magnifier.
Char-Mag Company.

Milwaukee, WI: Char-Mag Company; 1982. 6p.

Char-Mag Company of Glendale, Incorporated; 6026 North Apple Blossom Lane; Milwaukee, WI 53217. (414) 962-6059. PRICE: $4.80.

An optical-quality plastic magnifier clips onto Becton-Dickinson and Monojet U-100 disposable syringes. The magnifier enlarges the graduation scale two times without distortion. It can be flipped over after the syringe is filled and used as a stand.

40
Click/Count Syringe.
Orange Medical Instruments.

Costa Mesa, CA: Orange Medical Instruments; 1984.

Orange Medical Instruments; 3183 Airway Avenue; Suite F; Costa Mesa, CA 92626. (800) 527-1151 or (714) 641-5836 in California. PRICE: $30.00.

Designed specifically for blind or partially sighted people with diabetes, the insulin syringe has settings for two methods of operation: the measurement setting for measuring fluids into the syringe (each movement of one mark will result in an audible click) and the free travel setting for ejecting from the syringe. Instructions for use accompany the aid.

41
Dos-Aid Syringe Filling Device.
American Foundation for the Blind.

New York, NY: American Foundation for the Blind; 1984.

American Foundation for the Blind; 15 West 16th Street; New York, NY 10011. (212) 620-2170. ORDER NUMBER: MES 563. PRICE: $18.50.

The device features an adjustable volume regulator for positioning the syringe plunger. The regulator permits predetermination of the length of the column of insulin that can be drawn into the syringe. It is made of plastic and should be used primarily with disposable U-100 syringes, such as B-D Plastipac long or Jelco long.

42
Glucoscan Plus.
Lifescan Incorporated

Mountain View, CA: Lifescan Incorporated; 1983.

Lifescan Incorporated; 1025 Terra Bella Avenue; Mountain View, CA 94043. Nationwide (800) 227-8862; in California (800) 982-6132; or (415) 969-5720. PRICE: $169/meter; $215/system.

Glucoscan Plus is a small, lightweight self blood glucose meter. A wallet-sized case contains the meter and other equipment needed to determine blood glucose levels. The meter features an easy-to-read digital display and a series of audible cues to guide the user through the test sequence. The complete system contains the meter, 50 test strips, Penlet finger lance and 50 lancets, and a control booklet to record readings.

43
Reflocheck-S.
Boehringer Mannheim Diagnostics, Bio-Dynamics Division.

Indianapolis, IN: Bio-Dynamics Division; 1984.

Boehringer Mannheim Diagnostics, Incorporated; Bio-Dynamics Division; 9115 Hague Road; Indianapolis, IN 46250. (800) 858-8072. PRICE: $795.00.

The Reflocheck-S self blood glucose monitoring system provides audible instructions and test results through a voice synthesizer. Calibration is performed automatically to a lot-specific bar code on each test strip. A sampling device aids the user in obtaining an adequate blood drop and placing it on the test strip. The device automatically starts the timing process. An instructional audiocassette and illustrated guide are included. The system operates on normal house current or on batteries and is stored in a portable carrying case.

44
Travel Tips for Diabetics (Sound Recording).
Library of Congress.

Washington, DC: Library of Congress; 1977.
1 cassette.

Library of Congress; National Library Service for the Blind and Physically Handicapped; 1291 Taylor Street, NW; Washington, DC 20542. (202) 287-5100. ORDER NUMBER: RC-16586. PRICE: Loan: free to blind or handicapped individuals; available directly from regional or subregional libraries and through postage-free mail.

Recommendations and guidelines for traveling with diabetes are presented. The program includes information about time changes, insulin adjustments, and necessary equipment to take along. (DA-M).

45
Vial Center-Aid.
George Wright Industries.

Lincoln, NE: George Wright Industries; 1984.

George Wright Industries; 82 West Lakeshore Drive; Lincoln, NE 68528. (402) 477-1382 or (402) 474-0177. PRICE: $3.00.

The Vial Center-Aid is a wide, funnel-shaped guide designed to help visually impaired people with diabetes center a needle in the top of an insulin vial. The metal-plated guide snaps on and off the vial for reuse and is designed to prevent bending or blunting of needles.

46
Voxcom Talking Kit.
The Gladys E. Loeb Foundation.

Silver Spring, MD: Gladys E. Loeb Foundation; [1983].

The Gladys E. Loeb Foundation; 2002 Forest Hill Drive; Silver Spring, MD 20903. (301) 434-7748. PRICE: $50.00 plus $2.50 handling.

Voxcom Talking Kit is a small, self-contained unit that records and plays back records, recipes, instructions, and messages. To record or play, the adhesive-backed magnetic recording tape is attached to a file card and inserted into the unit, which features a one-button control for recording and for automatic start and stop. The cards may be erased and revised. The kit includes batteries, one roll of tape to apply to file cards, and 50 pretaped cards ready for recording. (DA-M).

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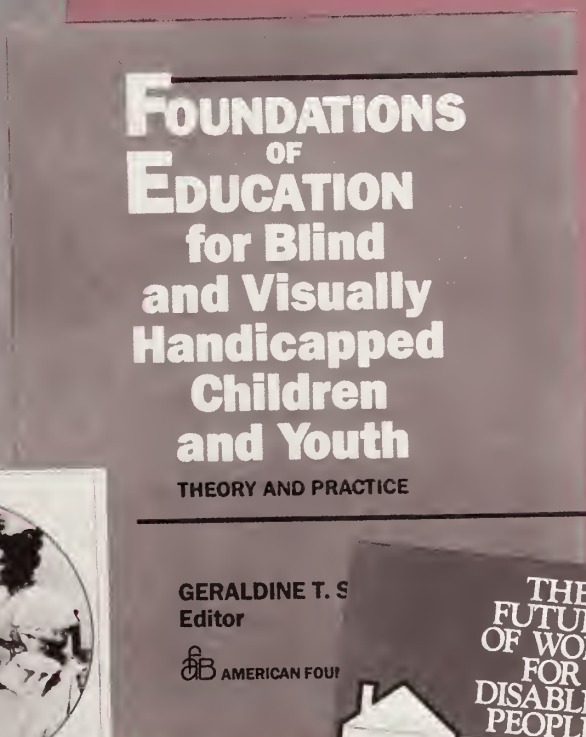
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CATALOG 1987–1988

American Foundation for the Blind













The American Foundation for the Blind is a national nonprofit organization that advocates, develops, and provides programs and services to help blind and visually impaired people achieve independence with dignity in all sectors of society. Among programs and resources provided by AFB in partnership with over 1,000 specialized schools, agencies, and organizations nationwide are public education, social and technological research, consumer products, publications, consultation and referrals, governmental relations, and Talking Books for the Library of Congress. Founded in 1921 and recognized as Helen Keller's cause in the United States, AFB is headquartered in New York City and maintains regional offices in Atlanta, Chicago, Dallas, New York, San Francisco, and Washington, DC.

AFB TOLL-FREE HOTLINE NUMBER

1-800-AFBLIND (232-5463)
NY RESIDENTS CALL (212) 620-2147

The hotline is in operation Monday through Friday, 8:30 a.m. to 4:30 p.m. EST or EDT. The hotline supplies information on visual impairment and blindness, and answers queries regarding AFB services, products, publications, technology, the Job Index (a national data and networking resource on the competitive employment of blind and visually impaired persons), and much more. Please do not use the hotline for ordering publications and consumer products. Refer to the "Order By Telephone" number in the ordering information section. The hotline cannot be reached from Alaska, Hawaii, Puerto Rico, the Virgin Islands, or Guam.

NEW BOOKS

BOOK OF THE YEAR—WINNER OF THE PRESIDENT'S COMMITTEE ON EMPLOYMENT OF THE HANDICAPPED 1987 BOOK AWARD!

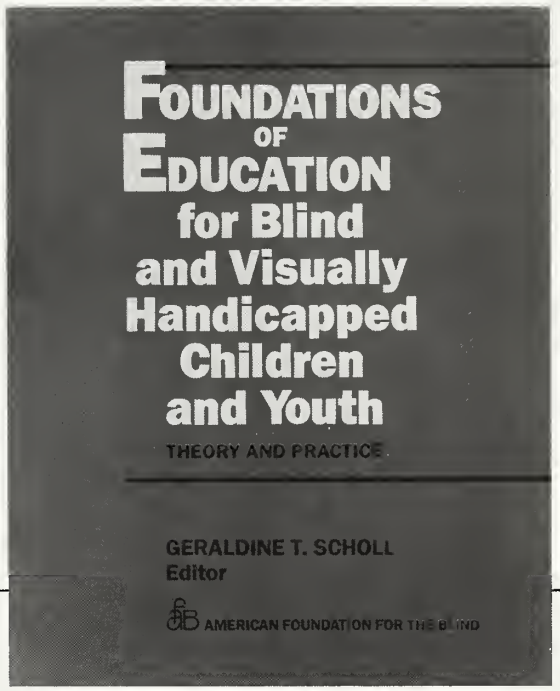
FOUNDATIONS OF EDUCATION FOR BLIND AND VISUALLY HANDICAPPED CHILDREN AND YOUTH: Theory and Practice

edited by Geraldine T. Scholl, School of Education, University of Michigan, Ann Arbor

A unique resource of current options in the education of blind and visually handicapped children, from preschool through high school. Twenty-six specialists contributed material to 22 chapters. Major sections include Education for the Visually Handicapped: A Social and Educational History; Definitions, Development, and Theory; Components of a Quality Educational Program; and Special Curriculum Considerations.

AFB cat. no. PEP124 (hardcover); PEP111 (cassette—15/16 ips); $32.00 each.

1986. 526 pp. Photos; tables; figures; appendices; bibliography; study questions; index; and timeline.
ISBN 0-89128-124-X

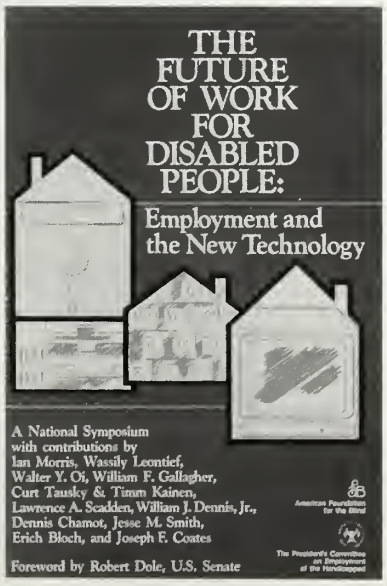


THE FUTURE OF WORK FOR DISABLED PEOPLE: Employment and the New Technology

Published jointly by AFB and the President's Committee on Employment of the Handicapped, the book is divided into three sections: The Work Content, The Changing Workplace, and The Future. The book stresses that handicapped persons need to become involved in the changes in society, emphasizes the importance of productivity for real income growth, and calls for disabled persons to be more involved in developing products and applications for their use.

AFB cat no. PVR141 (papercover); PVR145 (cassette—1 7/8 ips); $10.00 each.

1986. 116 pp.
ISBN 0-89128-141-X



AFB DIRECTORY OF SERVICES FOR BLIND AND VISUALLY IMPAIRED PERSONS IN THE UNITED STATES, 23rd EDITION

AFB's resource directory of agencies and other organizations for blind and visually impaired persons. Names, addresses, and services offered by the federal government are listed, with voluntary agencies, schools, and organizations.

AFB cat no. PIP147 (spiralbound); PIP912 (cassette—15/16 ips); $30.00 each.

450 pp. Index.

Publication date: January 1988.
ISBN 0-89128-147-9

CHOICE NOT CHANCE: A Guide to Computers for Blind and Visually Impaired Persons

A wide and frequently confusing array of computer options confronts professionals and consumers alike. *Choice Not Chance* demystifies the subject by discussing computers in terms of the tasks and functions to be performed and access modalities—synthetic speech, braille, large print. It covers use by blind and visually impaired persons and by professionals to produce materials in alternative media. Includes a comprehensive vendor list, training options, glossary, and illustrations.

AFB cat. no. PTL149 (papercover), $10.00

Publication date: January 1988.
ISBN 0-89128-149-5

NEW BOOKS



Preschool Vision Stimulation: IT'S MORE THAN A FLASHLIGHT! Developmental Perspectives for Visually and Multihandicapped Infants and Preschoolers

by Lois Harrell and Nancy Akeson,
Variety Club Blind Babies Foundation, San Francisco
Foreword by Creig S. Hoyt, M.D., University of California Medical Center, San Francisco

For both professionals who work with visually impaired children and their parents, this book features carefully researched procedures for preschool vision stimulation, an introduction to the philosophical justification for such procedures, and implications of visual impairment on early development.

AFB cat. no. PCP136 (papercover), $7.50.
1987. 49 pp. Photos; charts; illustrations.
ISBN 0-89128-136-3

HOW TO THRIVE, NOT JUST SURVIVE, A Guide to Developing Independent Life Skills for Visually Impaired Children and Youths

edited by Kathleen Mary Huebner, Ph.D.,
American Foundation for the Blind, New York, and
Rose-Marie Swallow, Ed.D.,
California State University, Los Angeles

Designed for parents and others involved in the education of blind and visually impaired children and youths, the book presents guidelines and strategies for helping them develop, acquire, and apply skills necessary for independence in socialization, orientation and mobility, and leisure time and recreational activities.

AFB cat. no. PIL148 (papercover), $9.00.
1987. 101 pp. 37 photos.
ISBN 0-89128-148-7

PROCEEDINGS OF THE 1985 HELEN KELLER SEMINAR: Ethical Issues in the Field of Blindness

What is right and how should it guide a person's conduct in the blindness system? Are we doing the most good in preparing more blind persons for better employment and career opportunities? These and other questions on ethics in the field of blindness were discussed by a panel who presented papers on the topics of *Ethics and the Delivery of Social Services, Ethical Practice in Providing Services to Blind and Visually Impaired Infants,* and *Ethical Issues and the Working Years.*

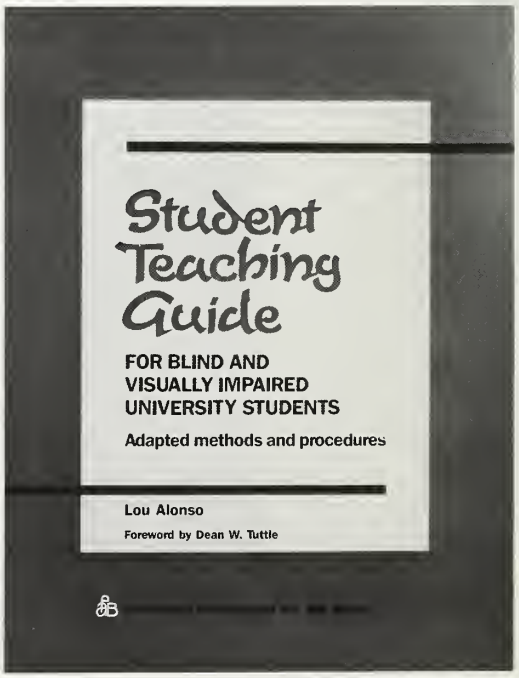
AFB cat. no. PIP146 (papercover), $5.00.
1986. 58 pp.
ISBN 0-89128-146-0

STUDENT TEACHING GUIDE FOR BLIND AND VISUALLY IMPAIRED UNIVERSITY STUDENTS: Adapted Methods and Procedures

by Lou Alonso, Michigan State University, East Lansing

A resource manual developed to help visually impaired student teachers with practice teaching, the part of the program that usually causes the most problems.

AFB cat. no. PES142 (papercover); PES916 (cassette—1 7/8 ips); PES917 (braille); $5.00 each.
1987. 55 pp. Large print.
ISBN 0-89128-142-8



FUTURE PUBLICATIONS

AGING AND VISION IN THE UNITED STATES: Issues, Facts, and Options

edited by Sandra Timmerman and Ruth Kaarlela

A "friendly," in-service text for practitioners in both aging and blindness systems. Heavily illustrated.

Publication date: Spring 1988

CREATIVE RECREATION AND LEISURE-TIME ACTIVITIES FOR BLIND AND VISUALLY IMPAIRED PEOPLE

Pamphlet designed for distribution by local agencies and school systems to families, giving a variety of recreation options, how they can be adapted, and agencies that have programs and information.

Publication date: Winter 1988

DATA ON BLINDNESS AND VISUAL IMPAIRMENT IN THE U.S.: A Resource Manual on Characteristics, Education, Employment and Service Delivery, 2nd Edition

by Corinne Kirchner, Ph.D., American Foundation for the Blind, New York

A new version of this source of information—data, analysis, social, educational, and employment characteristics of blind and visually impaired persons in the United States, and the delivery of services to that population. There will be additional topics as well as updated versions of the Statistical Briefs already published in the 1985 edition.

Publication date: Spring 1988

THE MAKING OF A DOG GUIDE

by Karen Schuurmans, American Foundation for the Blind, New York

This pamphlet describes the selection and training of a guide dog.

Publication date: Winter 1988

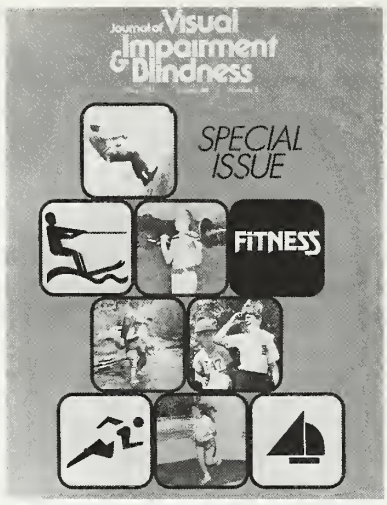
THE M.C. MIGEL MEMORIAL LIBRARY AND INFORMATION CENTER

The M.C. Migel Memorial Library was established in 1926 and is now a national center with state-of-the-art technology. The Library and Information Center contains more than 37,000 titles and offers a wide variety of consultative services. The library also holds the extensive collections of the AFB Records Center and Archives, the Helen Keller Archives, and the Helen Keller Photographic Collection.

Bibliographies & Fact Sheets on different aspects of blindness are available free of charge in inkprint, braille, and on 1 7/8 ips cassette tapes.

For more information, contact the M.C. Migel Memorial Library and Information Center, American Foundation for the Blind, 15 West 16th Street, New York, NY 10011; (212) 620-2162.

PERIODICALS



JOURNAL OF VISUAL IMPAIRMENT & BLINDNESS

An interdisciplinary journal for practitioners and researchers professionally concerned with blind and visually impaired persons. Each *JVIB* issue contains major articles from the research and practice domains on a wide variety of subjects including rehabilitation, psychology, education, legislation, medicine, computer and other technology, lifestyle and employment, sensory devices, bio-engineering, early childhood development, gerontology, sociology and social welfare, as they relate to visual impairment. All major articles and Short Reports are submitted to peer review before publication.

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- **Comment**—a forum for the discussion of critical issues, subjects of controversy, subjective views of various aspects of the field and substantive analyses of papers published in *JVIB*.
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- **Random Access**—helps the professional keep abreast of the technological revolution's impact upon the field, with news, reviews, and developments on computer hardware and software, devices and adaptations, networks, etc. Also serves as a "bulletin board" in print for answering reader queries.
- **Statistical Briefs**—each "brief" focuses on a special topic, analyzing data on characteristics of the visually impaired population and on the characteristics of the U.S. service delivery system.
- **Washington Report**—news and analysis of Congressional legislation and court decisions affecting visually impaired persons and those who work with them, as well as the actions of federal agencies administering related programs.
- **News**—reports of research, new sources of funding, devices, publications, personnel changes in the field, and a meeting calendar.
- **In This Issue**—A new section of *JVIB* in which the editors briefly describe important and provocative papers.
- **Letters**—An increasingly integral part of the readership's needs for a forum to foster dialogue so essential to the health of the field.

***JVIB* THEME ISSUES:**

From time to time, *JVIB* focuses on a special area of topical importance, commissioning articles, literature reviews, and comments from experts on the various professional and/or regional aspects, approaches, and issues being discussed.

- Aging —Vol. 81, No. 7, September 1987
- Fitness —Vol. 80, No. 5, May 1986
- Career Development —Vol. 79, No. 10, December 1985
- Microcomputers —Vol. 78, No. 9, November 1984
- Being Blind & Being a Woman —Vol. 77, No. 6, June 1983

Single copies of *JVIB* are available at the following prices: 1987, $3.00; 1983-1986, $3.25; 1979-1982, $3.75; 1975-1978, $4.25. For additional prices and availability of *JVIB* back issues, write to: Circulation Manager, *Journal of Visual Impairment & Blindness*, 15 West 16th Street, New York, NY 10011. Single copies of all special issues, $5.00. Orders must be accompanied by payment, and are filled subject to availability.

JVIB*: Ten months a year, September-June;* JVIB *is published in inkprint, braille, and cassette (15/16 ips) editions.*

Subscription Price:

	Individual Subscriptions	Institutional Subscriptions	Foreign Postage
One Year	$25.00	$30.00	add $7.50
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Three Years	65.00	80.00	add 22.50

No additional postage for Canada.

See order form information for complete postage pricing and subscription order form.

AFB NEWS

A 12-page national newsletter published five times a year for general readership about blindness and visual impairment, featuring people, programs, services, and activities. Illustrated.
Single copy free; bulk orders and free subscriptions from the Public Relations Department, American Foundation for the Blind.

LONG CANE NEWS

The National Newsletter for Professionals Working with the Visually Impaired and Blind Persons Who Get Around
A biannual newsletter for orientation and mobility specialists, and for educators and rehabilitation workers interested in applications of O&M. Features news from training programs, conferences, research projects, and workshops across the country, in university, clinic, school, and professional association programs. Also includes personnel and job news, letters to the editor, and occasional special regional sections.
Winter/Spring & Summer/Fall issue: $8.00.
International rate: $10.00; Foreign air mail: $12.00.
See subscription order form.

AFB ANNUAL REPORT

Highlights of the year's programs, services, publications, products, and personalities.
Published each fall. Single copy only, free; no bulk orders. Obtainable through the Public Relations Department, American Foundation for the Blind.

GENERAL INFORMATION

AFB DIRECTORY OF SERVICES FOR BLIND AND VISUALLY IMPAIRED PERSONS IN THE UNITED STATES, 23rd EDITION

See page 1 for a complete description.

ART NOT BY EYE: The Previously Sighted Visually Impaired Adult in Fine Arts Programs

by Yasha Lisenco, Jewish Guild for the Blind

Thirty-seven photographs of finished art, art in progress, and artists at work attest to the value and variety of work that can be done by visually handicapped persons in community fine arts programs. The book discusses both blindness and the blind person as an art student and describes techniques and media developed by the author, who has been teaching art to blind persons for 15 years.

AFB cat. no. PRP007 (papercover), $7.00.
1972. 125 pp. 37 photos.
ISBN 0-89128-007-3

ATTITUDES TOWARD BLIND PERSONS

by Irving F. Lukoff, Oscar Cohen, et al.

An overview of social and emotional attitudes toward blindness. Analysis from a sociological point of view is presented by Irving Lukoff, examples of prejudices toward the blind person by Oscar Cohen. Ways to develop more positive attitudes are discussed by other authors.

AFB cat. no. PRP009 (papercover), $6.00.
1972. 80 pp.
ISBN 0-89128-009-X

BERTHOLD LOWENFELD ON BLINDNESS AND BLIND PEOPLE

by Berthold Lowenfeld

Writings of the pioneering educator, author, and advocate for the blind or visually impaired child, selected from 40 years of published works, journal articles and commission reports. Contains the landmark paper, *Education of the Blind in Public Schools,* as well as the still-timely *Teaching Braille to Adults,* and the classic *The Child Who is Blind,* and Dr. Lowenfeld's remembrance of Helen Keller, as well as 25 other essays on education, psychology, and social and historical issues.

AFB cat. no. PEP104 (papercover), $9.00.
1981. 247 pp.
ISBN 0-89128-101-0

THE BLIND IN SCHOOL AND SOCIETY: A Psychological Study

by Thomas D. Cutsforth, Ph.D.

A revised and expanded edition of the classic 1933 study of psychosocial aspects of blindness in education and in society.

AFB cat. no. PPP011 (papercover), $6.00.
1951. 286 pp. Index; appendices.
ISBN 0-89128-011-1

HELEN AND TEACHER: The Story of Helen Keller and Anne Sullivan Macy

by Joseph Lash

The intimate story of two American women whose lives were bound together for all time. Joseph Lash, spanning almost 100 years, portrays their unique relationship marked by genius, dependence, and love, beginning with Anne Sullivan's early years in a Massachusetts poorhouse, through Helen's experiences as a child in the South, and later at Radcliffe, in vaudeville and politics, and in her work for the blind, to her final years without Teacher, and her death in 1968.

AFB cat. no. PLP139 (papercover), $6.95.
1980. 870 pp. 40 photos. Published by Dell Publishing Co., Inc.; distributed by AFB.
ISBN 0-440-53509-3

THE MEANING OF BLINDNESS: Attitudes Toward Blindness and Blind People

by Michael E. Monbeck

A study of attitude formation and social effect, in a psychological and historical framework, toward blindness and blind persons. Includes a review of literature on blindness.

AFB cat. no. PIR253 (hardcover), $8.00.
1973. 214 pp. Bibliography; index. Published by Indiana University Press; distributed by AFB.
ISBN 0-253-33727-5

A PSYCHIATRIST WORKS WITH BLINDNESS: Selected Papers

by Louis S. Cholden, M.D.

Seven papers on aspects of attitudes and therapy with blind persons by one of the first psychiatrists to work with blind persons in a rehabilitation setting.

AFB cat. no. PPP032 (papercover), $7.00.
1958. 119 pp. Frontispiece photograph.
ISBN 0-89128-032-4

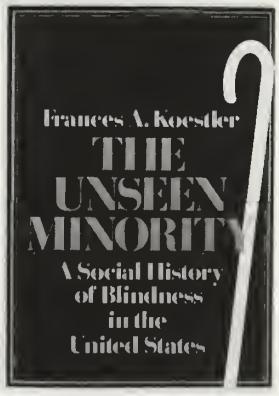
THE WAR OF THE DOTS

by Robert B. Irwin

The classic history of the struggle to achieve a uniform braille type in the United States by the man who pioneered the fight; a remarkable social document.

AFB cat. no. PIP069 (papercover), $4.00.
1970. 56 pp.
ISBN 0-89128-069-3





BLINDNESS: What It Is, What It Does, and How To Live With It

by Rev. Thomas J. Carroll

The classic work on the effect of adventitious blindness on self-perception and social interaction. Father Carroll's 1961 exposition on the death of the sighted person traces 20 individual sensory, psychic, motor, social, and economic losses, and discusses how each loss may be understood and compensated for.

AFB cat. no. PIL137 (papercover), $7.00.
1961. 395 pp. Charts; index. Published by Little, Brown and Company; distributed by AFB.

THE UNSEEN MINORITY: A Social History of Blindness in the United States

by Frances A. Koestler

A social history of blindness in America, and of efforts over the past 200 years to improve the quality of life for blind persons in social, educational, economic, legislative, and personal areas.

AFB cat. no. PIP957 (hardcover), $14.95 each.
1976. 570 pp. Published by David McKay Co., Inc.; distributed by AFB.
ISBN 0-679-50539-3

TEXTBOOKS

NEW—BOOK OF THE YEAR!

FOUNDATIONS OF EDUCATION FOR BLIND AND VISUALLY HANDICAPPED CHILDREN AND YOUTH: Theory and Practice

edited by Geraldine T. Scholl, School of Education, University of Michigan, Ann Arbor

See page 1 for a complete description.

FOUNDATIONS OF ORIENTATION AND MOBILITY

edited by Richard L. Welsh, Ph.D., Maryland School for the Blind, Baltimore, and
Bruce B. Blasch, Ph.D., Rehabilitation Research and Demonstration Center, Veterans Administration, Georgia

The basic textbook of theory and practice in a critical area of visual impairment and blindness: 20 authors and specialists have set forth the theory, principles, practice, and history of orientation and mobility training.

AFB cat. no. PPM093 (hardcover), $28.00.
1980. 687 pp. Figures; tables; illustrations.
ISBN 0-89128-093-6

UNDERSTANDING LOW VISION

edited by Randall T. Jose, O.D., Lighthouse of Houston and University of Houston

A 20-chapter overview of the current state and developing trends in the understanding and provision of care for persons with low vision. Jose establishes a framework for the understanding of the impact of low vision (or loss of vision) on functioning, learning, and psychosocial areas, encouraging detailed examination of current professional and practitioner services, and questions and debate on future directions for the field. Experts from 21 areas have contributed chapters, reports, and technical and questionnaire material to the special sections.

AFB cat. no. PLP119 (papercover), $22.00.
1983. 555 pp. Directory of resources; curriculum guides; annotated references by topic areas; index.
ISBN 0-89128-119-3

ORIENTATION AND MOBILITY TECHNIQUES: A Guide for the Practitioner

by Everett W. Hill, Ed.D., George Peabody College for Teachers, Vanderbilt University, Nashville, and
Purvis Ponder, Florida State University, Tallahassee

A large-format manual covering definitions, techniques, and devices designed for administrators, educators, rehabilitation counselors, and other professionals interested in the mobility training process.

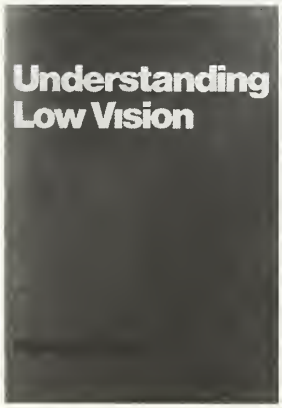
AFB cat. no. PMP001 (papercover), $8.00.
1976. 119 pp. Appendices.
ISBN 0-89128-001-4

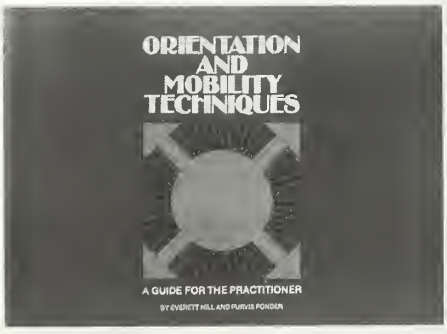
RECREATION PROGRAMMING FOR VISUALLY IMPAIRED CHILDREN AND YOUTH

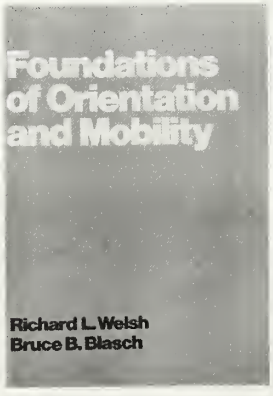
edited by Jerry D. Kelley, University of Maryland

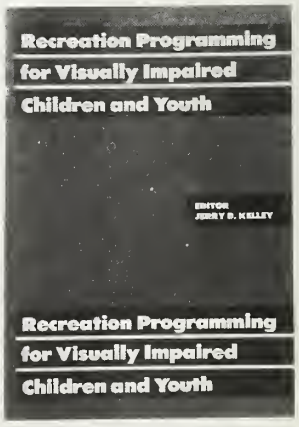
The theory and practice of recreation for blind and visually impaired youngsters. Includes chapters on *Foundations and Basis of Recreation and Leisure Services for Blind and Visually Impaired Children, Orienting the Visually Impaired Child to the Recreation Setting, Understanding Parents of Visually Impaired Children and Youth,* and *Resources—How to Locate and Use Them.*

AFB cat. no. PEP106 (papercover), $12.00.
1981. 176 pp. 43 figures; glossary; index.
ISBN 0-89128-106-1









GUIDES AND MANUALS

ASSESSMENT FOR VISUALLY HANDICAPPED CHILDREN AND YOUTH

by Rose-Marie Swallow, Ed.D., California State University, Los Angeles

Focuses attention on the nature of the visual defect and its implications in the classroom, diagnostic techniques, recommended tests, and individual modifications. The interacting roles of the teacher and school psychologist are considered in dealing not only with the visually handicapped child, but also with the multiply handicapped blind child.

AFB cat. no. PPP958 (papercover), $4.50.
1977. 82 pp. 11 tables; 2 figures; appendix; bibliography. AFB Practice Report
ISBN 0-89128-958-5

THE BODY-IMAGE OF BLIND CHILDREN

by Bryant J. Cratty and Theressa A. Sams

Discusses use of a body-image training sequence to evaluate the extent to which a blind child is able to identify body parts and respond to requests for various types of movement. Presents results of an evaluation of 91 children, with comparisons among various subpopulations. Includes review of the literature.

AFB cat. no. PMR014 (papercover), $6.00.
1968. 72 pp.
ISBN 0-89128-014-6

NEW!

CHOICE NOT CHANCE: A Guide to Computers for Blind and Visually Impaired Persons

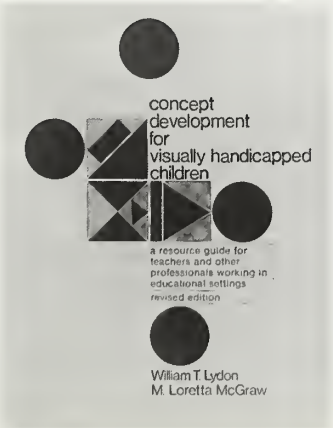
See page 1 for a complete description.

CONCEPT DEVELOPMENT FOR VISUALLY HANDICAPPED CHILDREN: A Resource Guide for Teachers and Other Professionals Working in Educational Settings

revised edition by William T. Lydon, Connecticut Institute for the Blind, Hartford, and M. Loretta McGraw, Maryland School for the Blind, Baltimore

A program for integrating concept development into the educational curriculum for blind children from kindergarten on, with a framework for use in varied educational settings.

AFB cat. no. PMP018 (papercover), $5.00.
1973. 69 pp. Bibliography.
ISBN 0-89128-018-9

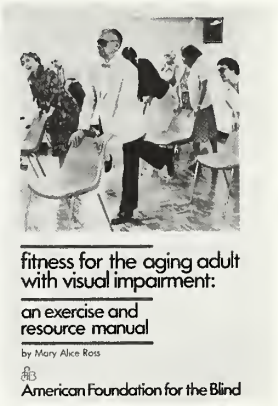


FITNESS FOR THE AGING ADULT WITH VISUAL IMPAIRMENT: An Exercise and Resource Manual

by Mary Alice Ross, United Cerebral Palsy of Queens, Inc.
preface by Barbara Silverstone, DSW, New York Association for the Blind

Picking up a grandchild, reaching for a can, smiling at the mailman: these are some of the goals and benefits of this unique program designed to maintain and improve physical fitness and personal well-being through exercise. This book discusses techniques, attitudes and how to use these exercises to develop programs, and includes medical guidelines, resources, and equipment sections.

AFB cat. no. PAP125 (papercover), $7.00.
1984. 84 pp. 73 photos; references.
ISBN 0-89128-125-8

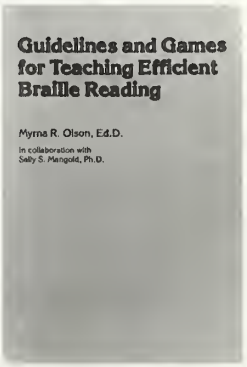


GUIDELINES AND GAMES FOR TEACHING EFFICIENT BRAILLE READING

by Myrna R. Olson, Ed.D., University of South Dakota in collaboration with Sally S. Mangold, Ph.D., San Francisco State University

This volume provides guidelines and describes games for teaching children to read braille efficiently. Based on research in the areas of rapid reading and precision teaching, it presents unique methods for adapting a general reading program to the needs of braille readers.

AFB cat. no. PEP105 (papercover), $8.00.
1981. 109 pp. 23 figures; 4 appendices.
ISBN 0-89128-105-3



HOW TO THRIVE, NOT JUST SURVIVE, A Guide to Developing Independent Life Skills for Visually Impaired Children and Youths

edited by Kathleen Mary Huebner, Ph.D., American Foundation for the Blind, New York, and Rose-Marie Swallow, Ed.D., California State University, Los Angeles

See page 2 for a complete description.

INCREASED VISUAL BEHAVIOR IN LOW VISION CHILDREN

by Natalie C. Barraga, Ed.D., University of Texas at Austin

Describes possibilities and effects of specialized instruction with appropriate print materials on the visual behavior of low vision children. Includes visual discrimination test, lesson plans, resource and program materials, and rating sheet.

AFB cat. no. PLR041 (papercover), $7.00.
1964. 180 pp. AFB Research Series No. 13.
ISBN 0-89128-041-3

INFORMAL ASSESSMENT OF DEVELOPMENTAL SKILLS FOR VISUALLY HANDICAPPED STUDENTS

edited by Rose-Marie Swallow, Ed.D., California State University, Los Angeles, Sally S. Mangold, Ph.D., San Francisco State University, and Philip Mangold, M.A., Castro Valley Unified School District, California

Informal assessment checklists and inventories developed by teachers of the visually handicapped to serve as a guide for those responsible for the assessment of visually handicapped children.

AFB cat. no. PEP964 (papercover), $5.00.
1978. 152 pp. AFB Practice Report.
ISBN 0-89128-964-X

NEW!

Preschool Vision Stimulation: IT'S MORE THAN A FLASHLIGHT! Developmental Perspectives for Visually and Multi-handicapped Infants and Preschoolers

by Lois Harrell and Nancy Akeson, Variety Club Blind Babies Foundation, San Francisco

See page 2 for a complete description.

LIVING WITH IMPAIRED VISION

by Anne Yeadon, Pennsylvania College of Optometry, Philadelphia, and
Dava Grayson

An introduction to how visually handicapped people function, from infancy through old age. A resource for professionals in different disciplines working in a variety of integrated settings.

AFB cat. no. PIP088 (papercover), $8.00.
1979. 75 pp. 46 photos.
ISBN 0-89128-088-X

NO PLACE TO GO

edited by Kathern F. Gruber and Pauline M. Moor

A symposium focusing on the multihandicapped blind child, intended to provide administrators, psychologists, and teachers with useful outlines of services, resources, and teaching methods for a population with special difficulties.

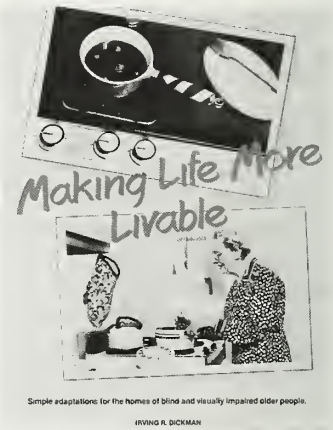
AFB cat. no. PCP001 (papercover), $5.00.
1963. 98 pp.
ISBN 0-89128-022-7

MAKING LIFE MORE LIVABLE

by Irving R. Dickman

Simple adaptations for the homes of blind and visually impaired adults and older people. In large type, with 54 illustrations, this book examines the home room by room, raising questions and suggesting answers: How can I tell what a can might contain? How can I dial the phone? How can I continue to sew? How can I use my workshop? The solutions and ideas range from the elementary to the ingenious, and provide stimulus for individual solutions to individual problems.

AFB cat. no. PAL115 (papercover), $7.00.
1983. 89 pp. 51 photos;
3 illustrations. Large print.
ISBN 0-89128-115-0



MEASURES OF PSYCHOLOGICAL, VOCATIONAL, AND EDUCATIONAL FUNCTIONING IN THE BLIND AND VISUALLY HANDICAPPED

by Geraldine T. Scholl, Ph.D., University of Michigan, Ann Arbor, and
Ronald Schnur, M.A.

Assessment measures that have been or are currently being used to test visually impaired persons. Listings include, whenever possible, a brief description of the measure, the source from which it is available, and references describing previous work with the test.

AFB cat. no. PPP000 (papercover), $6.00.
1976. 100 pp.
ISBN 0-89128-000-6

A PRACTICAL EDUCATION PROGRAM FOR THE DIABETIC CLIENT WITHIN THE REHABILITATION SETTING

by Nancy Dyer, B.S., M.Ed., Nevada School District, Carson City, Nevada, and
Pat Homeyer, B.S., R.N., C.R.C., Bureau of Services to the Blind, Carson City, Nevada

Practical information to enable an instructor with a background in biology or health sciences to teach the diabetic person to maintain good control of the condition. Provides a suggested format for implementation of the program within a rehabilitation setting.

AFB cat. no. PRP970 (papercover), $5.00.
1979. 151 pp. AFB Practice Report.
ISBN 0-89128-970-4

REACH OUT AND TEACH: Materials for Parents of Visually Handicapped and Multihandicapped Young Children

by Kay Alicyn Ferrell, Ph.D., Teacher's College, Columbia University, New York

Materials in this two-volume set are intended to give parents the information they need (and have asked for) to raise their visually or multiply handicapped children; the suggestions were field tested over two years. The **Parent Handbook** is a seven-chapter overview of early child development and activities and training techniques in all areas of motor and cognitive development and coincides with the **Reachbook**, in which parents can enter information and keep records of their child's progress. The **Slide/Tape Presentation** gives an introduction to the information in the **Parent Handbook** and the **Teacher's Manual** helps teachers adapt the materials for their own work.

PARENT HANDBOOK
1985. 269 pp. Photos; illustrations, bibliography.
ISBN 0-89128-127-4

REACHBOOK
1985. 171 pp. Photos; illustrations.
ISBN 0-89128-128-2
AFB cat. no. PEL128, $25.00 per set

SLIDE-TAPE PRESENTATION/TEACHER'S MANUAL
1985. 8 slide shows, total running time, 105 mins. Manual, 103 pp. (1 7/8 ips).
ISBN 0-89128-130-4
AFB cat. no. PEL129, $150.00 per set

RESUME WRITING GUIDE

edited by Henry B. Stern, American Foundation for the Blind, New York

A step-by-step approach to targeting, organizing, and writing a resume appropriate to individual job objectives.
AFB cat. no. PVP972 (papercover), $3.50.
1981. 16 pp. Large print.
ISBN 0-89128-972-0

SHOW ME HOW: A Manual for Parents of Preschool Visually Impaired and Blind Children

by Mary Brennan, M.S.Ed., Dominican College, Orangeburg, New York

A practical guide to specific activities, designed to enable parents, teachers, and others to work with preschool children to help them attain age-related goals.
AFB cat. no. PCL113 (papercover), $5.00.
1982. 54 pp. Appendix; bibliography. AFB Practice Report.
ISBN 0-89128-113-4

"SIMON SAYS" IS NOT THE ONLY GAME

compiled by Bernadette Leary, M.Ed., and Margaret von Schneden, M.Ed., Connecticut State Board of Education and Services for the Blind

Includes more than 100 games and songs, outlining objectives, steps, and materials for each, developed by teachers of blind and visually handicapped children and mobility instructors throughout the country to teach concept development to their own students.
AFB cat. no. PEP109 (papercover), $7.00.
1982. 148 pp.
ISBN 0-89128-109-6

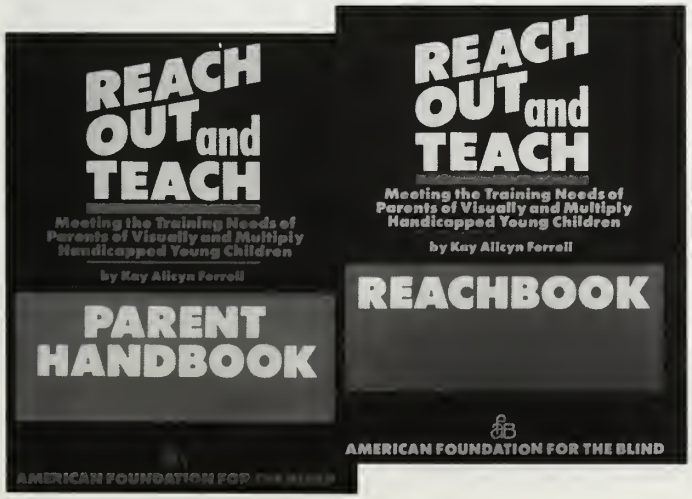
A SOCIAL MATURITY SCALE FOR BLIND PRESCHOOL CHILDREN: A Guide to Its Use

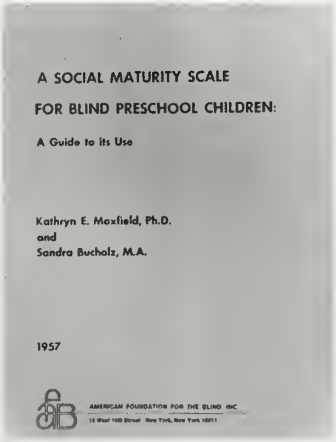
by Kathryn E. Maxfield, Ph.D., and Sandra Bucholz, M.A.

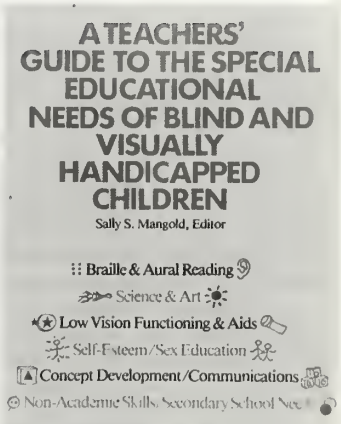
An adaptation of the Vineland Social Maturity Scale for use with blind children aged 0-6 years, consisting of 95 items, and using the percent passing technique. The objective is to find a means of comparing the present status and/or the progress of a given blind child's acquisition of personal and social independence and competence with that of other blind children of the same age. Includes one record blank for the Maxfield-Bucholz scale.
AFB cat. no. PPP059 (papercover), $6.00.
1957. 49 pp. 6 tables.
RECORD BLANKS (PPP059A), 7 pp. Single copy, 20 cents; 10 copies, $2.00; 25 copies, $5.00.
ISBN 0-89128-059-6

A STEP-BY-STEP GUIDE TO PERSONAL MANAGEMENT FOR BLIND PERSONS Second Edition

A manual of techniques for personal management in the areas of homemaking, hygiene, grooming, social graces, and clothing; for rehabilitation teachers and educators.
AFB cat. no. PRP061 (spiralbound), $6.50.
1974. 135 pp.
ISBN 0-89128-061-8







NEW!

STUDENT TEACHING GUIDE FOR BLIND AND VISUALLY IMPAIRED UNIVERSITY STUDENTS: Adapted Methods and Procedures

by Lou Alonso, Educational Psychology and Special Education, Michigan State University, East Lansing

See page 2 for a complete description.

A TEACHER'S GUIDE TO THE SPECIAL EDUCATIONAL NEEDS OF BLIND AND VISUALLY HANDICAPPED CHILDREN

edited by Sally S. Mangold, Ph.D., San Francisco State University

A multi-disciplinary approach to the education of visually handicapped students, with each chapter focusing on a unique educational need.

AFB cat. no. PEP108 (papercover), $9.00.
1982. 160 pp.
ISBN 0-89128-108-8

TOWARD INDEPENDENCE: The Use of Instructional Objectives in Teaching Daily Living Skills to the Blind

by Anne Yeadon, M.A., Pennsylvania College of Optometry, Philadelphia

Instructional objectives as a teaching technique, how to develop them, and how to use them in teaching blind persons. Illustrated by a daily living skills class developed around instructional objectives.

AFB cat. no. PRP064 (papercover), $8.50.
1974. 138 pp.
ISBN 0-89128-064-2

TRAVEL IN ADVERSE WEATHER CONDITIONS

by Richard L. Welsh, Ph.D., Maryland School for the Blind, Baltimore, and William Wiener, Western Michigan University, Kalamazoo

Problems visually impaired persons face traveling in bad weather and solutions that have proved effective. Areas covered include environmental, cognitive, sensory, movement, health, psychosocial, equipment and clothing, and dog guide programs.

AFB cat. no. PMP081 (papercover), $4.00.
1976. 24 pp. 16 photos.
ISBN 0-89128-081-2

WHAT ARE FRIENDS FOR?

A self-help/peer discussion program designed to encourage older people to work together to identify their needs, to learn how to modify the physical and social environment to meet those needs, and to compensate for the loss of one sense through better use of others. Group meetings among equals also provide opportunities to take an active part in creative problem-solving and to build self-confidence. The basic program package includes:

Guidebook: general tips and "how-to" suggestions for leading effective group discussions.

Big Pad: A self-standing flip chart with captioned illustrations that correspond to the major ideas covered.

Poster: A colorful wall hanging that pictures older people working together to solve common problems. It provides space to publicize dates, times, and places of discussion sessions, and the sponsoring agency or group's name. Five copies are included with each package.

BASIC PACKAGE

Guidebook: 130 pp. Illustrations. Big Pad: 35 pp. Poster: 5 copies. Available as set only.
AFB cat. no. PAL110, $24.95.
1982.
ISBN 0-89128-110-X

SLIDE/TAPE PRESENTATION

A ten-minute color slide/tape presentation introducing potential groups and leaders to the topics and working groups concept. Script included. (1 7/8 ips).

AFB cat. no. PAL981, $30.00.

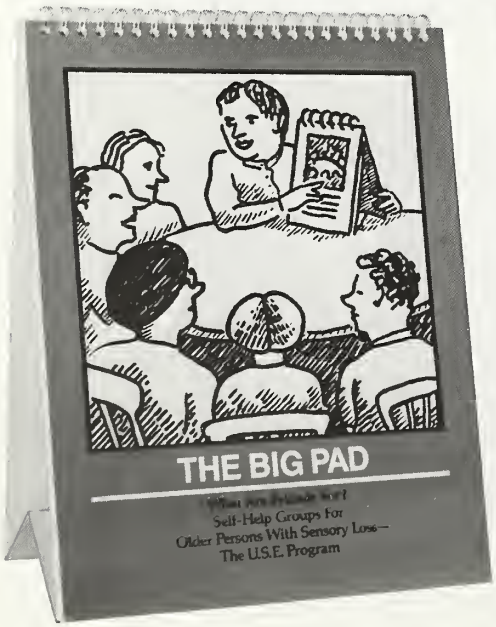
GUIDEBOOK CASSETTE EDITION

Particularly useful for individuals with visual impairments. (1 7/8 ips).

AFB cat. no. PAL982, $5.00.

ADDITIONAL POSTERS

AFB cat. no. PAL983, 5 for $3.75.







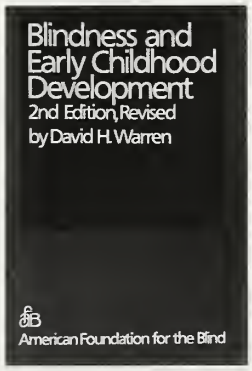
RESEARCH AND SELECTED PAPERS

BLINDNESS AND EARLY CHILDHOOD DEVELOPMENT 2nd Edition, Revised and Expanded

by David H. Warren, Ph.D., University of California, Riverside

A review of knowledge about the effects of visual impairment on child development, encompassing motor and locomotor development, perceptual development, language and cognitive development, social, emotional, and personality development. Also discusses areas in critical need of more research attention and the shortcomings of available research literature. The reference section is greatly expanded.

AFB cat. no. PCR123 (papercover), $12.00.
1984. 377 pp. Index.
ISBN 0-89128-123-1



COMPETENCY BASED CURRICULUM FOR TEACHERS OF THE VISUALLY HANDICAPPED: A National Study

by Susan Jay Spungin, Ed.D., American Foundation for the Blind, New York

The results of a national study to test the effectiveness of a pilot edition of competencies for teachers of the visually handicapped, and to gain information about the most needed skills. The book includes the competencies and tabular reports on each one.

AFB cat. no. PER077 (papercover), $6.00.
1977. 216 pp. 27 tables; appendices.
ISBN 0-89128-077-4

DATA ON BLINDNESS AND VISUAL IMPAIRMENT IN THE U.S.: A Resource Manual on Characteristics, Education, Employment and Service Delivery

by Corinne Kirchner, Ph.D., et al., American Foundation for the Blind, New York

An accessible source of information—data, analysis, social, educational, and employment characteristics of blind and visually impaired persons in the United States, and the delivery of services to that population. Originally published in the *Journal of Visual Impairment & Blindness* between 1977 and 1983, these 28 Statistical Briefs present concise, valuable, and current demographic information for policy planners and researchers working with all aspects of blindness and visual impairment, as well as other special populations.

AFB cat. no. PIR116 (papercover), $15.00.
1985. 320 pp. Charts; graphs; figures.
ISBN 0-89128-116-9

NEW!

THE FUTURE OF WORK FOR DISABLED PEOPLE: Employment and the New Technology

See page 1 for a complete description.

HELP ME BECOME EVERYTHING I CAN BE

edited by Mary Ellen Mulholland and Marion V. Wurster

Proceedings of a 1978 Minneapolis conference on the needs of young visually handicapped children and their families, presenting thirty-three papers in four major topic areas: *Setting the Scene; Developmental Needs; Parenting*; and *Programs and Projects.*

AFB cat. no. PCP118 (papercover), $7.00.
1983. 128 pp. 10 figures; 7 tables.
ISBN 0-89128-118-5

PIAGETIAN REASONING AND THE BLIND

by Yvette Hatwell, University of Grenoble, France
translated by Pierre Verdet

First published in France in 1966, with an introduction by Paul Fraisse, *Privation sensorielle et intelligence* has become a landmark study in the application of Piagetian assessment of cognitive development and operational thought processes in blind and visually impaired children. In a new introduction, Professor Hatwell, 18 years after publication of the first French edition, reassesses some of her methods and conclusions, and responds to comments and work arising from publication of the first edition.

AFB cat. no. PPR122 (papercover), $12.00.
1985. 173 pp. Figures; tables.
ISBN 0-89128-122-3

SCIENCE INSTRUCTION OF VISUALLY IMPAIRED YOUTH: A Research and Review of Relevant Literature

by Dean R. Brown, Ed.D., University of Colorado, Fort Collins

A review of the literature and methodology on teaching science to visually impaired students at elementary, secondary, and higher education levels, focusing on how concepts in science are learned.

AFB cat. no. PEP969 (papercover), $4.00.
1978. 20 pp. AFB Practice Report.
ISBN 0-89128-969-0

PROCEEDINGS OF THE 1982 HELEN KELLER SEMINAR: Standards and Models for Excellence

An overview on standards, accountability and accreditation in the field of visual impairment and blindness. Includes papers on the Early Years, Working Years, and Later Years as well as two general session presentations: *The Role of the Administration on Aging* by Lennie-Marie P. Tolliver, Ph.D., *The Many Faces of Accountability*, by Owen R. Davison, and *Quality Services: A Consumer's View* by Roderick J. MacDonald, president, American Association of the Deaf-Blind.

AFB cat. no. PIP120 (papercover), $5.50.
1983. 39 pp.
ISBN 0-89128-120-7

PROCEEDINGS OF THE 1983 HELEN KELLER SEMINAR: Blindness/Visual Impairment: A Family Affair

Seven papers on economic, psychosocial, and care aspects of family dynamics when there is a blind or visually impaired family member. Also presents the edited text of the two general session panels, one on *A Question of Identity,* with contributions from Andrew Potok, Eileen Hancock, Norma F. Krajczar, and Ada May Fearson; and the second on *Reports and Action Plans* from the three age-focused workshop groups.

AFB cat. no. PIP126 (papercover), $6.00.
1984. 52 pp.
ISBN 0-89128-126-6

PROCEEDINGS OF THE 1984 HELEN KELLER SEMINAR: Serving the Multiply-Handicapped: More Than Just Blind

This seminar dealt with the national issues and concerns of multiply handicapped persons. Senator Jacob K. Javits was keynote speaker. *Proceedings* include papers presented at workshop sessions on the Early Years, Middle Years, and Later Years of the individual who is multiply handicapped as well as a general session on *Action Plans and Strategies.*

AFB cat. no. PIP140 (papercover), $6.00.
1985. 73 pp.
ISBN 0-89128-140-1

PROCEEDINGS OF THE 1985 HELEN KELLER SEMINAR: Ethical Issues in the Field of Blindness

See page 2 for a complete description.

SEX EDUCATION FOR THE VISUALLY HANDICAPPED IN SCHOOLS AND AGENCIES: Selected Papers

Papers dealing with various aspects of the development of sex education programs in schools and agencies for the blind: why sex education; the administrator's role; curriculum; psychosocial aspects; and the use of behavioral objectives.

AFB cat. no. PEP071 (papercover), $5.00.
1975. 76 pp.
ISBN 0-89128-071-5

THE SOCIAL SOURCES OF ADJUSTMENT TO BLINDNESS

by Irving F. Lukoff and Martin Whiteman

A review of critical aspects and implications of the socialization process of blind persons.

AFB cat. no. PPR060 (papercover), $7.00.
1970. 301 pp. AFB Research Series No. 21.
ISBN 0-89128-060-X

SPECIFICATIONS FOR SELECTING A VOCABULARY AND TEACHING METHOD FOR BEGINNING BRAILLE READERS

by Hilda Caton, Ed.D., University of Louisville, and American Printing House for the Blind,
Eleanor Pester, M.A., American Printing House for the Blind, and Sharon Goldblatt-Bensinger, B.A., Director of Visually Impaired Preschool Services, Inc., Louisville

Specifications written for a Beginning Braille Reading Series developed at the American Printing House for the Blind. Section I discusses selection of vocabulary and contains orders of difficulty of braille code categories and specific braille characters. Section II discusses selection of an appropriate teaching methodology and includes descriptions of various methods now in use with braille readers.

AFB cat. no. PER971 (papercover), $4.50.
1979. 76 pp. AFB Research Report.
ISBN 0-89128-971-2

PUBLIC EDUCATION MATERIALS

AFB AND ITS REGIONAL OFFICES

Describes the American Foundation for the Blind services at the national, state, and community levels with addresses and phone numbers of AFB regional offices and the Washington legislative office.

AFB cat. no. FIP112 (brochure).
1982. Revised 1987. 2 pp.
Free, up to 50 copies; no bulk orders above 50.

THE M.C. MIGEL MEMORIAL LIBRARY AND INFORMATION CENTER: Information Resource on Blindness and Visual Impairment

An introduction to the M.C. Migel Memorial Library and Information Center, and AFB's archival collections.

AFB cat. no. FIL999 (pamphlet).
1984. 13 pp. Photos. Braille and cassette editions available.
Single copy only, free; no bulk orders.

AFB PUBLICATIONS CATALOG

A complete listing of all AFB publications—periodicals, books, and educational pamphlets, as well as a special section on sale publications. Title and author indexes.

AFB cat. no. FIP905.
1987. Free, up to 50 copies; no bulk orders above 50.
Cassette edition available, single copy only, free.

AFB PUBLICATIONS OF GENERAL INTEREST

The popular AFB publications listed in this "mini-catalog" are useful to parents, teachers, and others in helping to know more about and understand visual impairment and blindness.

AFB cat. no. FIL915 (pamphlet).
1986. Single copy only, free; no bulk orders.

AFB PUBLICATIONS FOR UNIVERSITY PROFESSIONAL TRAINING PROGRAMS

This "mini-catalog" lists the AFB publications useful to professionals, teachers, researchers, and practitioners concerned with blindness and visual impairment.

AFB cat. no. FIS918 (pamphlet).
1987. Single copy only, free; no bulk orders.

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This catalog contains descriptions of publications offered and distributed by the American Foundation for the Blind. AFB publishes a wide range of print, cassette, braille, and audio-visual materials on issues, policies, data, research, and practice relating to all aspects of blindness and visual impairment in America.

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AFB cat. no. FTL026 (papercover); FTL027 (braille).
Annual. Illustrations.
Single copy only, free; no bulk orders on either edition.

AGING AND VISION: Making the Most of Impaired Vision

The American Association of Retired Persons and AFB have produced this pamphlet to provide straightforward answers and helpful tips.

AFB cat. no. FAL909 (pamphlet).
1985. Revised 1987. 20 pp. Large Print.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

BRAILLE ALPHABET AND NUMBERS

Embossed with the braille alphabet and numbers, this 9″×4″ display card includes a description of the history and rules of braille.

AFB cat. no. FIS025.
1984.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

BREAKING TRADITIONS: Education and Career Opportunities for Blind and Visually Impaired Women

edited by Rev. Robert Jones, Consortium for Continuing Education of Visually Impaired Adults, and Frances A. Koestler

A special insert in the June 1983 issue of the *Journal of Visual Impairment & Blindness,* which focused on "Being Blind and Being a Woman," the report discusses overcoming career roadblocks and the traditionally limited roles imposed by society.

AFB cat. no. FVL994 (booklet).
1983. 20 pp. Photos; references.
Single copy only, free; no bulk orders.

CAREER CHOICE FOR BLIND AND VISUALLY IMPAIRED STUDENTS: Career Planning and Placement Offices

Mainstreaming is a fact in education. How can it be made a viable option in career choice? AFB presents information, tips, and ideas, drawn from a national survey of college placement officers, on the special needs—and the special skills—of this student population, and how to reach and work with them.

AFB cat. no. FIL903 (pamphlet).
1985. 12 pp.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

CATARACTS AND THEIR TREATMENT

by Arthur S. Freese

What cataracts are, types of cataracts, warning signs and symptoms, surgery, and post surgery. Practical definitions and descriptions of treatment for the lay person are included.

AFB cat. no. FIL053 (pamphlet).
1977. 24 pp. 6 illustrations. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.
ISBN 0-88291-100-7

CREATING CAREERS FOR BLIND PEOPLE: Rehabilitation and Technology

by Irving R. Dickman

Today, technology and the training provided by rehabilitation and blindness agencies have put better jobs and career advancements within the reach of many thousands of blind people. This pamphlet describes specific skills and jobs attainable by visually impaired people.

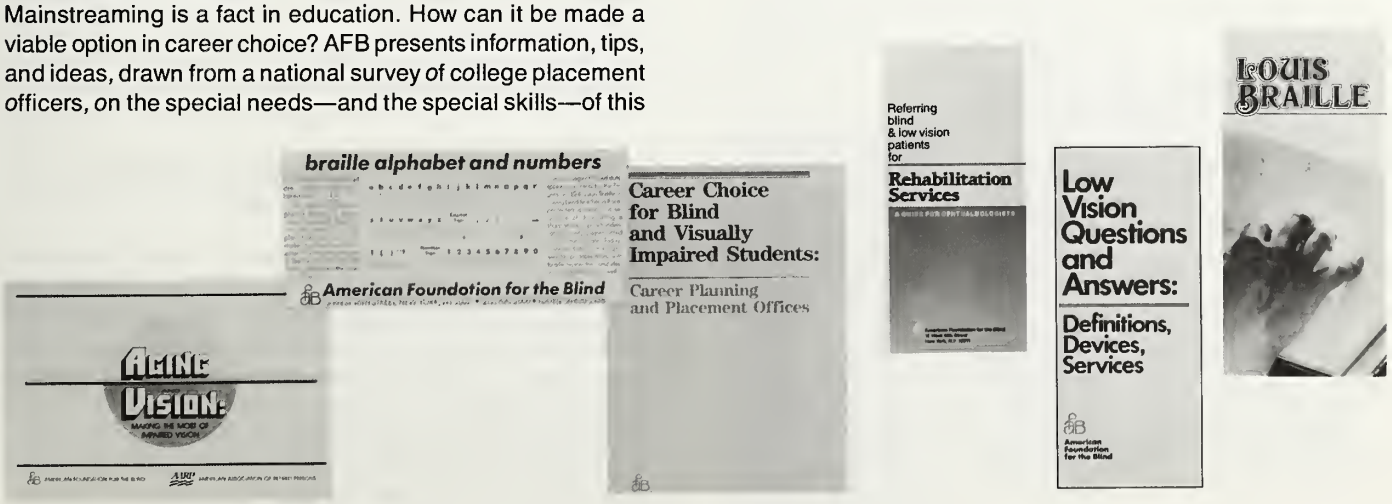
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1986. 24 pp. 4 photos. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.
ISBN 0-88291-105-8

DIABETES, VISION IMPAIRMENT, AND BLINDNESS

by Allene R. Van Son, R.N., Erie County Medical Center, Buffalo, New York

A straightforward presentation on chronic diabetes, and its relationship to vision loss. Explains the terminology, progression and features of diabetes, outlines in detail visual complications that can arise, discusses the impact of waning vision and diabetes management, and presents some new treatments and rehabilitation programs.

AFB cat. no. FRL902 (pamphlet).
1985. 27 pp. Figures; resources; bibliography.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.



A DIFFERENT WAY OF SEEING

by Robin L. Tannenbaum

Presents the ways in which blind children read and write, what they do for fun, equipment and devices they may have, and how children may assist blind friends. Written as a letter to children in a forthright and friendly tone.

AFB cat. no. FEL989 (pamphlet).
1984. 22 pp. 12 photos; 4 illustrations.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

ENVIRONMENTAL MODIFICATIONS FOR THE VISUALLY IMPAIRED: A Handbook

compiled by John Duncan, Calasha Gish, Mary Ellen Mulholland, and Alex Townsend

Provides suggestions for modifying the environment, both interior (from doors and lighting to elevators and restrooms) and exterior (from street crossings to outdoor furniture and plants), to better meet the needs of visually impaired people. Also contains comprehensive lists of sources of information.

AFB cat. no. FIP055 (pamphlet).
Revised 1981. 14 pp.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

GETTING HELP FOR A DISABLED CHILD— Advice From Parents

by Irving R. Dickman and Sol Gordon

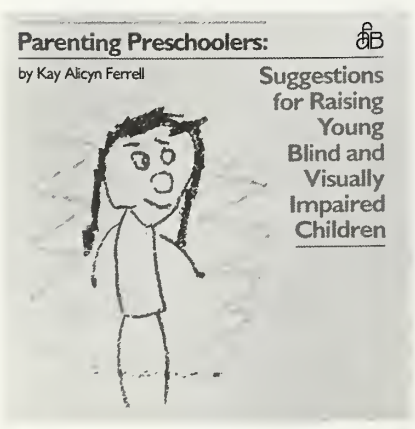
Discusses the priority and importance of decisions to be made immediately after the birth of a disabled child. Includes advice for parents and further sources of information.

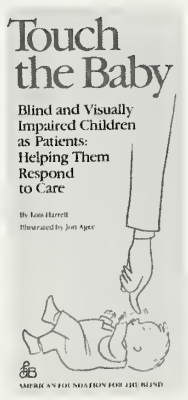
AFB cat. no. FCL992 (pamphlet).
1983. 28 pp. 4 illustrations. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.
ISBN 0-88291-021-3

A GOOD EMPLOYEE IS CAPABLE, CONSCIENTIOUS, PRODUCTIVE

This pamphlet describes the attributes of a good employee, unrelated to physical qualities or disabilities. Recommended for use by the employer, this pamphlet answers the questions that may arise when a blind person is added to the staff.

AFB cat. no. FVL919 (pamphlet).
1987. Photos.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.





HELEN KELLER

A brief biography that focuses on the major events of Helen Keller's life, from her birth in Tuscumbia, Alabama on June 27, 1880, to her death in Connecticut on June 1, 1968.

AFB cat. no. FIS033 (pamphlet).
Revised 1968. 6 pp. 13 photos.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

HELEN KELLER: An Annotated Bibliography

compiled by Marguerite L. Levine and Karen H. Schuurmans

Brief descriptions and bibliographic details of books by Helen Keller—prose and poetry, letters, journals, travel writing, and reflections on religion and politics—as well as books about Helen Keller, including several publications for children, and the 1957 Broadway play, *The Miracle Worker.*

AFB cat. no. FIP107 (pamphlet).
1981. Revised 1987. 7 pp.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

HELEN KELLER: Worker for the Blind

by Mary Ellen Mulholland, American Foundation for the Blind, New York

A pictorial biography emphasizing Helen Keller's accomplishments in public life over a period of more than sixty years.

AFB cat. no. FIL980 (pamphlet).
1980. 8 pp. 15 Photos.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

PARENTING PRESCHOOLERS: Suggestions for Raising Young Blind and Visually Impaired Children

by Kay Alicyn Ferrell, Ph.D., Teacher's College, Columbia University, New York

Answers to the most frequent questions of parents who have just learned their child has vision problems. Topics include what to expect if a child is blind or visually handicapped, when and if a cane will be needed, where to get help, and how to choose an early childhood program. *Parenting Preschoolers* provides some basic definitions, references, and agency lists.

AFB cat. no. FCL998 (pamphlet).
1984. 28 pp. 18 photos.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

LOW VISION QUESTIONS AND ANSWERS: Definitions, Devices, Services

by Paul W. Cockerham

Diagnosis, treatment, services, devices, attitudes, contacts—definitions and options for visually impaired people are discussed in a straightforward question-and-answer format. Estimates show 80 percent of people classified as "legally" blind in the United States may actually belong in the low vision category.

AFB cat. no. FLL116 (pamphlet).
1984. Revised 1987. 21 pp. 13 photos; 1 illustration.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

HOW DOES A BLIND PERSON GET AROUND?

by Jo Anne Murphy

Information for the general public about blind and visually impaired people: how they get around on their own, travel devices (sighted guides, dog guides, long canes), and a brief overview of orientation and mobility training, past, present, and future.

AFB cat. no. FML034 (pamphlet).
1973. 20 pp. Photo illustrations.
Single copy, free; 25 copies, $20.00; 50 copies. $30.00; 100 copies, $60.00; 500 copies, $150.00.

INDEPENDENT LIVING: New Goal for Disabled Persons

by Irving R. Dickman

Discusses alternatives to living in an institution, with practical information on how to obtain financial and other types of aid to make independent living possible.

AFB cat. no. FIL037 (pamphlet).
1975. 28 pp. 5 illustrations. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.
ISBN 0-88291-084-1

JOBS FOR DISABLED PEOPLE

by Frank Bowe

Discusses the "hidden minority," estimated to total more than 36 million U.S. citizens, patterns of employment and income, rights and responsibilities, hiring, devices, programs that help. Lists resources for further information.

AFB cat. no. FVL920 (pamphlet).
1985. 24 pp. 5 illustrations. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.
ISBN 0-88291-000-0

LOUIS BRAILLE

A brief biography of the inventor of the braille system of writing and reading.

AFB cat. no. FIS040 (pamphlet).
1972. 13 pp. 4 photos.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.

REFERRING BLIND AND LOW VISION PATIENTS FOR REHABILITATION SERVICES: A Guide for Ophthalmologists

Ophthalmologists often have asked AFB for assistance in locating and evaluating further services for their visually impaired and blind patients. This pamphlet is designed to help ophthalmologists in referring their patients for quality services.

AFB cat. no. FIP913 (pamphlet).
1986.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

THIS IS AFB

Describes the services the American Foundation for the Blind offers at the national, state, and community levels with addresses and phone numbers of AFB regional offices and the Washington governmental relations office.

Publication date: September 1987.
Free, up to 50 copies; no bulk orders over 50.
Obtainable through the Public Relations Department, American Foundation for the Blind.

TOUCH THE BABY: Blind and Visually Impaired Children as Patients—Helping Them Respond to Care

by Lois Harrell, Variety Club
Blind Babies Foundation, San Francisco
Cartoon illustrations by Jon Agee

How-to manual describing the care of blind and visually impaired babies, the neonate, blind preschool children, visually impaired preschool children, and the newly blind child in medical settings. Guidelines, tips, and encouragement presented in an attractive and personal tone.

AFB cat. no. FCP115 (pamphlet).
1984. 13 pp. 9 illustrations.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

UNDERSTANDING AND LIVING WITH GLAUCOMA

Types of glaucoma, cures, and different treatments available are discussed in a straightforward manner for patients and their families. This booklet was written by a glaucoma patient with the assistance of the doctors and staff of the Foundation for Glaucoma Research.

AFB cat. no. FIL907 (pamphlet).
1984. Revised 1987. 32 pp. Published by The Foundation for Glaucoma Research; distributed by AFB.
Single copy only, free; no bulk orders.

A VISION IMPAIRMENT OF THE LATER YEARS: Macular Degeneration

by Irving R. Dickman

Describes senile macular degeneration, examines treatments and the rehabilitation process.

AFB cat. no. FIP114 (pamphlet).
1982. 28 pp. 6 photos; 1 illustration. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.

VISUALLY IMPAIRED PROFESSIONAL PERSONNEL

Practical ways in which an employer can eliminate social barriers before they occur at any stage of the employment process. Topics include recruitment, the hiring process, on the job, and retaining a productive employee.

AFB cat. no. FIL063 (pamphlet).
1981. 23 pp.
Single copy, free; 25 copies, $20.00; 50 copies, $30.00; 100 copies, $60.00; 500 copies, $150.00.
Cassette edition available, single copy only, free.

WHEN YOU HAVE A VISUALLY HANDICAPPED CHILD IN YOUR CLASSROOM: Suggestions for Teachers

by Anne Lesley Corn, University of Texas at Austin, and Iris Martinez, New York Board of Education

Practical suggestions for the teacher who has a visually handicapped pupil in a regular classroom. Includes advice on attitudes, mobility, and materials, and information on special devices, resources, and personnel.

AFB cat. no. FEL057 (pamphlet).
1977. 28 pp. 7 illustrations.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

WHAT CAN WE DO ABOUT LIMITED VISION?

by Irving R. Dickman

Discusses the various eye problems that can cause limited vision and describes and explains the kinds of services and devices available to persons with visual handicaps.

AFB cat. no. FLL060 (pamphlet).
1973. 28 pp. 5 illustrations. Published by the Public Affairs Committee; distributed by AFB.
Single copy only, free; no bulk orders.

WHAT DO YOU DO WHEN YOU MEET A DEAF-BLIND PERSON?

A flyer/poster representation of the One-Hand Manual Alphabet, with photographs of Helen Keller's hands showing the position of each of the 26 letters, and a period photograph of Helen "speaking" into Alexander Graham Bell's hand. Includes a 9-point guide on what to do when one meets a deaf-blind person.

AFB cat. no. FIS042 (brochure).
Revised 1986. 4 pp. 27 photos.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

WHAT DO YOU DO WHEN YOU SEE A BLIND PERSON? (And What Don't You Do)

This pamphlet, designed and illustrated by *New Yorker* cartoonist R.O. Blechman, describes how one should—and should not—act when first meeting a blind person.

AFB cat. no. FIL061 (pamphlet).
1970. 9 pp.
Single copy, free; 25 copies, $10.00; 50 copies, $15.00; 100 copies, $30.00; 500 copies, $75.00.

SALE PUBLICATIONS

ABILITY STRUCTURE AND LOSS OF VISION

by Jyrki Juurmaa, Ph.D.

A study showing how such ability traits as reasoning, verbal comprehension, and dexterity are affected by loss of vision.

AFB cat. no. PPR002 (papercover), $5.00.
1967. 128 pp. 41 tables. AFB Research Series No. 18.
ISBN 0-89128-002-2
BACKLIST SALE PRICE: $3.00.

ABSTRACT FUNCTIONING IN THE BLIND

by Edmund Joseph Rubin, Ph.D.

The findings of a study to test the hypothesis that congenitally blind adults would have lower scores than sighted and later-blind subjects on selected tests of abstraction.

AFB cat. no. PPR003 (papercover), $6.00.
1964. 64 pp. 17 tables. AFB Research Series No. 11.
ISBN 0-89128-003-0
BACKLIST SALE PRICE: $3.60.

THE ANXIETY SCALE FOR THE BLIND

by Richard E. Hardy, Ed.D.

A test developed for use with children and modified for adults. For use only by psychologists, psychiatrists, and other qualified counselors.

AFB cat. no. PPP006 (papercover), $6.00.
1968. 10 pp.
ISBN 0-89128-006-5
BACKLIST SALE PRICE: $3.60.

BLINDNESS AND THE ELECTRICAL ACTIVITY OF THE BRAIN: Electroencephalographic Studies of the Effects of Sensory Impairment

by L.A. Novikova

Translated English language edition. A definitive study, by a member of the staff of the Institute of Defectology of the Soviet Socialist Republic, Moscow, of basic facts regarding the effects of visual impairment on the EEG.

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A monograph that studies the theory of community formation and how blind persons themselves form communities.

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A study of how open-minded and dogmatic attitudes affect rehabilitation following loss of vision.

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A FIBRE OPTIC DIRECT TRANSLATION READING AID FOR THE BLIND

by Philip O'Donovan and Larry F. Lind

Discusses a direct translation reading device that has been developed with a reading head employing a linear array of eight sensing fibres in the proximal scanning mode.

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Describes five approaches to integration and ways to make it succeed.

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by Maravene Loeschke, Ph.D.

Describes mime techniques and class formats for teaching movement to visually handicapped people developed as a result of an experimental study.

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by T.M. Nelson, C.J. Ladan, and J. Epps

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ISBN 0-89128-965-8
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OUTREACH TO THE AGING BLIND: Some Strategies for Community Action

by Irving R. Dickman

Describes the different ways in which local communities can reach out to their aging blind members, who are often "hidden."

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PERCEPTUAL FACTORS IN BRAILLE WORK RECOGNITION

by Carson Y. Nolan and Cleves J. Kederis

Result of study of the braille system as a communicating process by the American Printing House for the Blind.

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ISBN 0-89128-023-5
BACKLIST SALE PRICE: $3.00.

PRECOLLEGE PROGRAMS FOR BLIND AND VISUALLY HANDICAPPED STUDENTS

by Susan Jay Spungin, Ed.D.

Discusses precollege orientation programs to prepare the visually handicapped student for integration into the sighted college community.

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BACKLIST SALE PRICE: $2.70.

RECOMMENDED AIDS FOR THE PARTIALLY SIGHTED Revised second edition

by Louise L. Sloan, Ph.D.

Published by the National Society for the Prevention of Blindness, Inc. and distributed by AFB. Includes "A Nontechnical Explanation of Basic Optical Principles" by Louise L. Sloan and Stephen J. Ryan, Jr., M.D.

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by Ann Marie Delaney and Robert J. Nuttall

SOURCES OF NEEDS ASSESSMENT IN PUBLIC LAW

by John L. Duncan

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A study of selected variables that may affect subsequent development and a review of the literature.

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A workbook for parents, teachers, and shop students with construction directions and educational devices for children.

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BLINDNESS AND EARLY CHILDHOOD DEVELOPMENT, 2nd edition
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DISTANCE VISION AND PERCEPTUAL TRAINING: A Concept for Use in the Mobility Training of Low Vision Clients
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FOUNDATIONS OF ORIENTATION AND MOBILITY
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NATIONAL STUDY OF RADIO READING AND INFORMATION SERVICE LISTENING: Results from Survey of 506 Listeners at 45 Reading Services
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1985.

NO PLACE TO GO
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ORIENTATION AND MOBILITY TECHNIQUES: A Guide for the Practitioner
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1985.

THE PINE BROOK REPORT: National Work Session on the Education of the Blind with the Sighted
American Foundation for the Blind
1954.

POSTURE IN THE BLIND: The Use of Its Determinants in the Diagnosis and Treatments of Its Problems
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1966.

PROCEEDINGS OF THE INTERNATIONAL CONGRESS ON TECHNOLOGY AND BLINDNESS
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A PSYCHIATRIST WORKS WITH BLINDNESS: Selected Papers
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RESOURCES FOR VISUALLY IMPAIRED DIABETICS

Among the resources available to visually impaired diabetics are specially adapted medical equipment; diabetic cookbooks in large print, braille, and cassette; directories; a support network; a video tape; and even a correspondence course!

The following list is as comprehensive as possible. We encourage readers to do further research on their own through local diabetes organizations, services for visually impaired people, regional libraries for blind and physically handicapped patrons, and public libraries.

NATIONAL INFORMATION CENTERS

AMERICAN DIABETES ASSOCIATION
1660 Duke Street
Alexandria, VA 22314
1-800-232-3472
(In VA, 703-549-1500)

ADA has many local affiliates; call the national office for details. Large print "Exchange Lists for Meal Planning" are available through the ADA. Price: $3.25. See "Exchange Lists for Meal Planning", page 9, for sources for braille and cassette editions.

AMERICAN FOUNDATION FOR THE BLIND
15 West 16th Street
New York, NY 10011
1-800-232-5463 or (212) 620-2000

See "Commercial Sources of Medical Equipment", "Talking Devices for Visually Impaired Diabetics", and "Other Resources" for items available from AFB.

NATIONAL DIABETES INFORMATION CLEARINGHOUSE
Westwood Building, Room 603
Bethesda, MD 20205
Tel: (301) 468-2162

A national clearinghouse for diabetes information which is part of the National Institutes of Health. Publishes "Diabetes Dateline".

COMMERCIAL SOURCES OF MEDICAL EQUIPMENT

"Diabetic Control: Equipment for Use with Vision Loss", AIDS AND APPLIANCES REVIEW, Carroll Center for the Blind, 770 Centre Street, Newton, MA 02158 lists and evaluates many of the commercially available devices for measuring and administering insulin: needle guides, insulin gauges, syringes, syringe magnifiers, etc. Contact the Carroll Center to request a print or cassette copy of this issue. Print: $1.25; send blank cassette for cassette copy.

The following specialty mail order businesses carry some of the devices listed in the article above:

"Products for People with Vision Problems"
American Foundation for the Blind
15 West 16th Street
New York, NY 10011
1-800-232-5463 or (212) 620-2000

Independent Living Aids
11 Commercial Court
Plainview, NY 11803
(516) 681-8288

Science Products
Box A
Southeastern, PA 19399
1-800-888-7400; in PA, call: 1-800-222-2148

Maxi-Aids, Inc.
86-30 102nd Street
Richmond Hill, NY 11418
(718) 846-4779

"TALKING" DEVICES FOR VISUALLY IMPAIRED DIABETICS

1. Talking Blood Glucose Meter

Portable, uses rechargeable batteries, automatic calibration two step operation with results in approximately two minutes. Uses OMI Beta Scan Trenstrip Reagent Strips. For information and the nearest distributor, contact Orange Medical Instruments, 3183 Airway Avenue, Suite F, Costa Mesa, CA 92424. Call: 1-800-527-1151; in CA, (714) 641-5836. Often covered, at least in part, by medical benefits.

2. Glucochek S. C. Audio Monitor

Has a large digital read-out display board and emits electronic tones to signal testing procedures and blood

and blood glucose values. Price includes all accessories: audio monitor, guide for application of blood onto strip, duo-set carrying cases, 25 test strips, alcohol applicator, cleaning brush, confidence check strip, cassette tape instructions, large type of picture instructions and braille instructions: $479.95. $30 certificate for professional demonstration included. Manufactured by EquiMed Medical Products, Inc., 8347 Melrose Drive, Lenexa, KS 66214. Tel: 1-800-452-7536; in KS, (913) 541-0800.

A cassette tape describing the audio model in more detail is available for $1.00 from Ed Bryant, 811 Cherry Street, Suite 306, Columbia, MO 65201. Tel: (314) 875-8911.

2. Talking Blood Pressure Monitor

Battery-operated device provides voice-guided step-by-step instruction. Inflates and deflates a comfortable, easy-to-use cuff; announces actual blood pressure and pulse readings, which are also visually displayed; announces and displays error messages and battery replacement; and turns unit off if user forgets. One-year warranty. $119.90 plus $4.50 shipping, handling, and insurance. Batteries included. Order from: Consumer Products Division, American Foundation for the Blind, 15 West 16th Street, New York, NY 10011.

3. Sears Automatic Digital Sphygmomanometer
Has a synthetic voice which tells the user how to use the machine and what the actual readings are. The LCD display alternately shows systolic and diastolic pressures. Price: $129. Available through the Sears Catalog.

4. Thermo-Voice

Announces temperature in choice of Farenheit or Celsius. Comes with two probes, one for body temperature and general purposes and a second for high temperatures (such as an oven). Critical switches are brailled. Operates on built-in rechargeable battery (charger and AC adaptor included). Large print and braille instructions enclosed with unit. Order from: American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Call 1-800-232-5463.

COOKBOOKS IN SPECIAL MEDIA

Contact the National Library Service for the Blind and Physically Handicapped, 1291 Taylor Street, NW, Washington, DC 20542. Tel: 1-800-424-8567 and ask for the name of the regional library which serves your state. Cookbooks are available in cassette and braille from the NLS. Some NLS regional libraries also lend large print books, including cookbooks. Your local public library is another good source for large print cookbooks.

OTHER BOOKS IN SPECIAL MEDIA

<u>Joslin Diabetes Manual</u>
G.K. Hall and Company
70 Lincoln Street
Boston, MA 02111

(617) 423-3990

Large print, two volumes, $24.95. Although this book is currently out-of-print, be sure to check the large print section of your local library for it.

Kentucky Diabetes Foundation Literature--available on cassette tape from the Diabetic Division of the National Federation of the Blind. Each cassette is $1.00; order from: Cheryl McCaslin, 10810 Bravura, Dallas, TX 75217. Tel: (214) 557-8774. Titles are:

A Professional Approach--Nutritional Care for Diabetes Mellitus

Meal Planning--A Reference for Healthy Eating

High and Low Blood Sugar; Healthy Hygiene

Nutrition Guide; Bloodsugar Testing

Diabetes Teaching Cards

Insulin Facts; Urine Testing

Diabetes Mellitus (two tapes)

Know Your Diabetes, Know Yourself
Joslin Diabetes Center
One Joslin Place
Boston, MA 02215
Attention: Accounting Dept.

An hour-long videotape in which Joslin patients talk about the daily issues of diabetes management--using an eating plan, the important roles exercise, monitoring, injections, foot and eye care play in their lives, and how they manage their disease when sick or traveling. Joslin physicians, nurses, and other health professionals discuss the essentials of good diabetes care and real patients, not actors, provide motivation and support. Recorded on 1/2 inch VHS format; price: $39.95. Allow 4 to 6 weeks for delivery.

Resource List of Aids and Appliances--from the Diabetic Division of the National Federation of the Blind in braille, $2.00; Cassette, $1.00; and print, send self-addressed, stamped envelope. Order from: Martha LaQue, 284 Caddo Street, San Antonio, TX 78211.

To See or Not to See--A Patient's Guide to Diabetic Retinopathy

A resource manual written by Donna K. Schoessow, a diabetic woman, who experienced sudden loss of vision due to diabetic retinopathy, it describes the symptoms, diagnosis and treatment of this eye condition. It discusses some of the possible complications of diabetes and how you can participate in the treatment and prevention of some of the problems associated with diabetes. Large print: $3.95 plus 63 cents shipping ($4.58); cassette: $2.75 plus 98 cents shipping ($3.73). Bulk orders are available at discount upon inquiry. Order from: To See or Not to See, 4237 E. Alderdale Avenue, Anaheim, CA 92807.

You, Your Eyes and Diabetes
Hadley School for the Blind
700 Elm Street
Winnetka, IL 60093

Free correspondence course in jumbo braille, large print, or cassette. Write for free catalog.

OTHER RESOURCES

Diabetes: Caring for Your Emotions As Well as Your Health
Jerry Edelwich and Archie Brodsky

Addison-Wesley Publishing Company
Route 128
Reading, MA 01867
(617) 944-3700

A supportive account of living with diabetes and the feelings that accompany every crisis, choice, and achievement. Although not specifically written for those who are visually impaired and printed in standard print, this book offers suggestions for adaptation, relationships with medical personnel, family strategies, employment questions, technology, and support groups. Price: $17.95 hardbound.

"Diabetes Forecast"--on recorded disc, available bimonthly as part of "Encore" through the National Library Service for the Blind and Physically Handicapped. Free. Contact your regional library to subscribe. Some regional libraries also make "Diabetes Forecast" available on cassette to their patrons; if you prefer the cassette edition, request it from your regional library.

"Diabetes, Vision Impairment, and Blindness"
Allene R. Van Son, R.N.
American Foundation for the Blind
15 West 16th Street
New York, NY 10011

Describes vision impairment and diabetes, visual complications of diabetes, the impact of diminishing vision on diabetes management, rehabilitation, organizations, and resources. Free, in single copies; bulk rate: $.50 each. Print only.

"Diabetic Retinopathy"
National Eye Institute
Building 31, Room 6A32
Washington, DC 20892

Available in standard print from National Eye Institute; in large print (free) and on cassette ($2.00) from VISION Foundation, Inc. (see address on letterhead).

"Exchange Lists for Meal Planning"

Large Print Edition:
AMERICAN DIABETES ASSOCIATION
1660 Duke Street
Alexandria, VA 22314
1-800-232-3472
(In VA, 703-549-1500)

Large print edition of the definitive nutrition guide, newly revised, $3.25.

Braille Edition:
NFB Diabetic Division
811 Cherry Street, Suite 306
Columbia, MO 65201.

Price: $15.00 (91 braille pages).

Cassette Edition:

Lynne Luxton
American Foundation for the Blind
15 West 16th Street
New York, NY 10011

An audiocassette edition is available as part of a two cassette set titled: "Managing Your Diabetes with Vision Impairment and American Diabetes Association Diet Exhange Lists". Price: $4.00, payable to the American Foundation for the Blind.

National Federation of the Blind, Diabetic Division
919 Main, Suite 15
Rapid City, South Dakota 57709
(605) 348-8418

Founded in 1982, the Diabetic Division is a support network for its members who have experienced blindness and renal failure, strokes, amputations, neuropathy, heart attacks and other complications of diabetes. In addition to providing emotional support, the Division provides answers to questions about aids and appliances used by diabetics for continued independence.

Publishes "Voice of the Diabetic", a quarterly newsletter. An annual $2.00 membership in the Division includes a free newsletter subscription (print and tape); tapes must be returned. Non-member, professional, and institutional rate is $6.00/year. Send membership to: Ed Bryant, 811 Cherry Street, Suite 306, Columbia, MO 65201.

VISION Foundation, Inc.--October 1988

What You Always Wanted to Know But Didn't Know Where to Ask

(Resource List)

(Inclusion of materials in this publication is for information only and does not imply endorsement by the Diabetics Division of NFB.)

What's Coming Up

By Ed Bryant

A detailed report will appear in the next issue of *The Voice* in which I explain various models of blood glucose monitoring meters with audio output. I am currently examining three meters, but if I can obtain other[s] do so and report on [them]. Following are the [ones] examining:

per cassette. Contact our resource librarian Cheryl McCaslin, 3115 Crestview, Apt. 107, Dallas, TX, 75235; telephone: (214) 528-8107.

Braille

New exchange list for meal pl[an]ning: We have available [a] new "Exchange List[s]" (83 braille-[page] nice [print]

Tidl

2. Plastic In[sulin] gauges are c[ut] syringe plung[er] measuremen[t] ble. Cost: $ [5.00] ping. For [more] contact: B[raille] S.W. 50th

3. No[vel]tem): pen b[ody] cartri[dge] Insul[in] visu[al] au[dio] of c

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What You Always Wanted to Know
Didn't Know Where To Ask

(Resource List)

The Blind At Work

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Subscription/Donation/Membership Form

Although the $2.00 annual membership fee of the Diabetics Division of the National Federation of the Blind (NFB) entitles you to a year's subscription to **Voice of the Diabetic**, production cost per annual subscription of the **Voice** is about $6.00. For this reason, we must charge all non-members, health professionals, and institutions $6.00 for an annual subscription. Of course, all donations are accepted and very much appreciated.

If you wish to become a member of the Diabetics Division of NFB, receive a copy of **Voice of the Diabetic**, or make a donation to the Diabetics Division of NFB, please check the appropriate box or boxes below:

☐ I would like to become a member of the Diabetics Division of the NFB and receive *Voice of the Diabetic:*
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☐ I am a non-member or health professional who would like to receive *Voice of the Diabetic.* ($6.00)
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☐ I would like to make a tax-deductible contribution of $_____ to the Diabetics Division of the NFB.

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Send this form or a facsimile along with your check to our treasurer:

Carol Anderson, 23 Lake Shore Drive South, Randolph, NJ, 07869.

Please make all checks payable to the **NATIONAL FEDERATION OF THE BLIND.**

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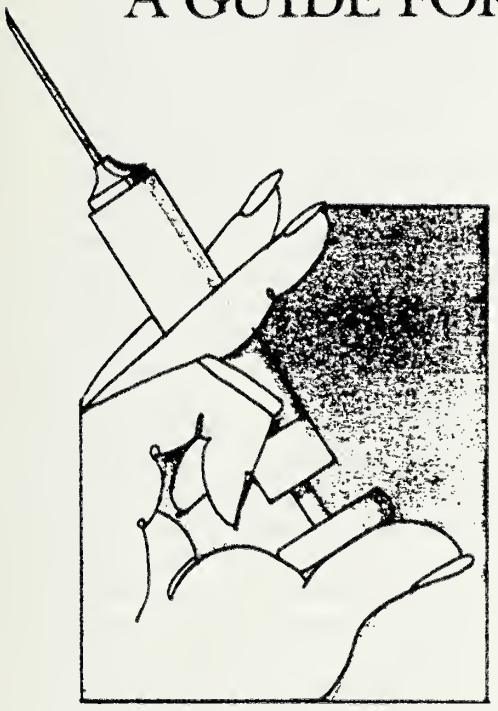
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PREPARING INJECTIONS

A GUIDE FOR THE VISUALLY IMPAIRED

by David H. Barnow



New devices on the market have helped visually impaired individuals live increasingly independent lives. The area of diabetes is no exception. In the May/June issue, *Diabetes Self-Management* explained how people with impaired vision could monitor their own blood sugar levels with the help of specially adapted "talking" blood glucose meters (see "Blood Glucose Self-Monitoring for the Visually Impaired" by Ruth Carr, R.N.). By the same token, new products on the market allow blind individuals to independently load syringes and inject insulin. There are many ways to go about preparing your own injections, using a variety of products. The following approach is the one I use.

There are four mechanical aids that will help in this process: the insulin dosage monitor, the Holdease needle guide and syringe vial holder, a site selector for insulin injection, and a deck of Braille cards to indicate the next site location.

Drawing an accurate dose of insulin

The purpose of the *dosage monitor* is to make it possible for a blind person to get an accurate dose of insulin. It's a simple device—just a piece of plastic about an inch wide and about six inches long with a slot that fits over the Becton-Dickinson syringe finger hold. A sighted person can cut it to the correct length to give you the exact number of units you need. Once you've done this, it's impossible to give yourself an incorrect dose. This device is manufactured by Andros, Inc., 2332 Fourth Street, Berkeley, California 94710. It is available for purchase through Independent Living Aids, 11 Commercial Court, Plainview, New York 11803.

Inserting the needle into the vial

One of the major problems I first experienced was how to insert the needle into the rubber stopper at the top of the insulin bottle. If I inserted it at the wrong angle, it dulled the needle, and a dull needle hurts. The *Holdease needle guide* solves that problem beautifully. It's simple to use and works about 99 times out of a 100. The only time it doesn't work is when the needle is bent. The Holdease is also available from Independent Living Aids.

Selecting an injection site

The next question is, where do you inject the insulin? It's advisable to rotate sites. For this purpose, the *Site Selector* is made by Becton-Dickinson and Co., Rutherford, New Jersey 07070. The size is 11" × 2⅝" and it is made of heavy paper stock. It has eight holes, two parallel rows of four. For abdominal sites, one uses the navel as the reference point. I make my injections in four horizontal rows, three each on the right and three each on the left. The first row is one line above the navel. The fourth line two rows below the navel. For thigh injections I inject three across on each thigh and four rows down. In this way I don't come back to a given site for 48 days. You can probably obtain one of these from your local American Diabetes Association or by writing Becton-Dickinson and Co. After wearing out a few paper Site Selectors, I had one made up in thin plastic.

The next question is how do you know where the next injection goes? I've solved this problem by making up a deck of 3 × 5 cards with a Braille marking for each of the 48 sites in the order I want to inject them. Rather than making my injections right next to each other, I start on the right side of the top row and inject into every other site, skipping over adjacent sites. Then I move down to the first row of my thigh and do the same thing. Next I

move back up to the top row of my abdomen and inject into sites that I skipped before. You can use the chart on this page to follow this order, using sites 1 through 12 in area A and proceeding to area B, and so on.

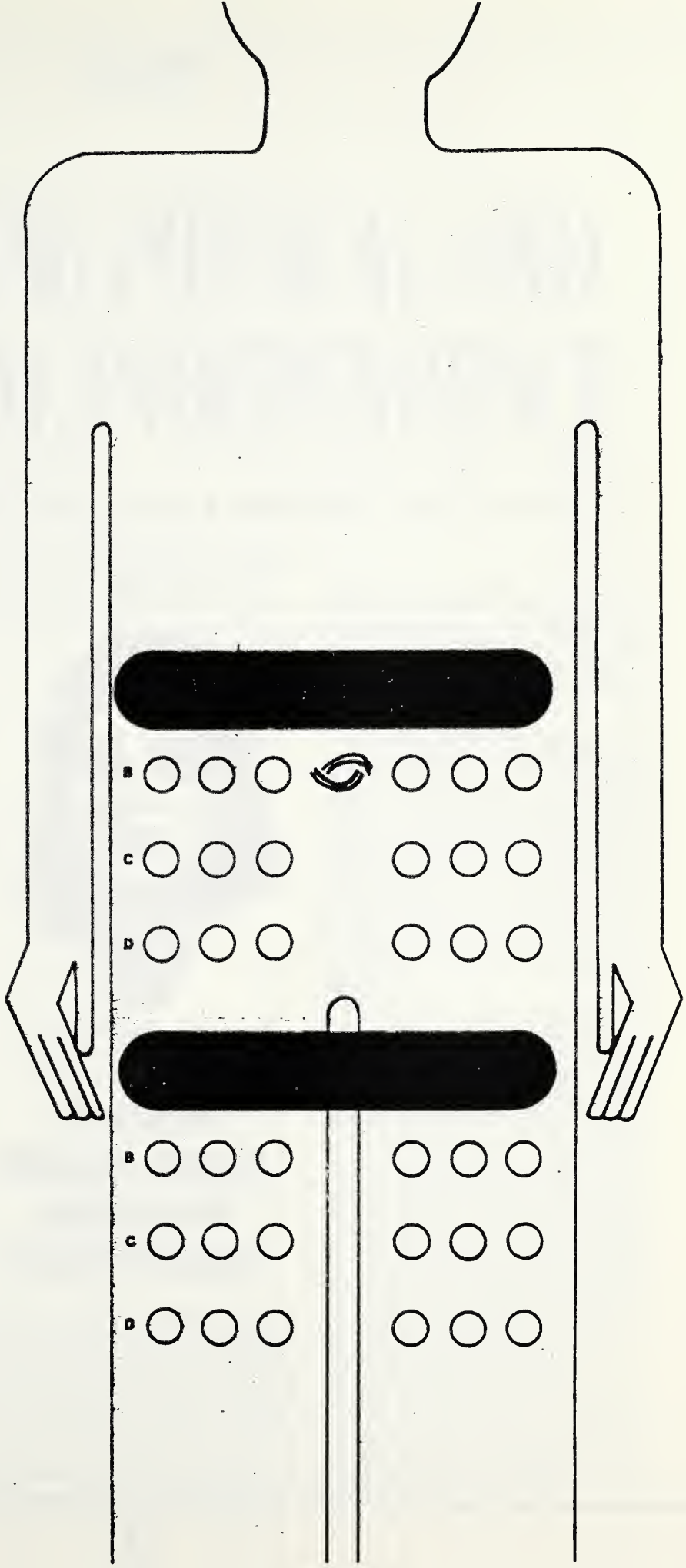
That's the sequence in which my cards are stacked. After each injection, I take the card from the top and move it to the bottom of the deck. You can emboss the Braille dots directly on 3 × 5 cards, but I found that the dots wear down. So, what I've done is use a 3-M Scotch Brand Braille tape writing machine and pasted the plastic tape with Braille numbers on each card, the left corner for the abdomen, the right corner for the thigh. These will last longer than I will.

Starting a new bottle

How do you know when the bottle is empty? Let's say you're on 40 units. Divide the 40 units into the 1,000 units in the bottle. You know the bottle should last about 25 days. Count out 22 syringes. When you've used them, have a sighted person tell you how close you are to empty. Then check it each day. If you're on 25 units a day, then a bottle should last about 40 days.

In summary

Here's my procedure. I happen to need 6 units of Regular and 40 units of NPH. After cleaning the bottle tops, I put the syringe into the Holdease. I set the syringe at 40 with my Dosage Monitor and inject 40 units of air into the NPH bottle, but I don't withdraw any insulin. Then I change bottles, inject 6 units of air into the bottle of Regular insulin using a 6-unit dosage monitor, and draw 6 units of Regular insulin into the syringe. Next, I change bottles again and draw 40 units of NPH. I refer to the deck of Braille cards for the next site and use the Site Selector to find the correct site and inject away—independently. □



Mr. Barnow, a retired executive, is blind and has insulin-dependent diabetes.

RESTORING PHYSICAL AND EMOTIONAL INDEPENDENCE

A SPECIAL PROGRAM FOR THE VISUALLY IMPAIRED DIABETIC PATIENT

MARLA BERNBAUM, M.D.

Diabetes mellitus is one of the leading causes of blindness among American adults. Each year approximately 5,000 diabetic individuals in the United States develop severe vision impairment or blindness. The psychological and physical distress produced by vision impairment is immense for anyone experiencing loss of this vital sense. Because of the reliance on sight by the diabetic individual in routine diabetic self-care, loss of vision results in an increased dependence on others, and intensification of stress. Daily insulin injections, glucose monitoring, and even preparation of meals can become overwhelming burdens for the individual, as well as for concerned family members. Other diabetic complications which can occur simultaneously, such as nerve, kidney and cardiovascular disease, add significantly to the depression and anxieties that accompany failing vision. The loss of control over the diabetes and the general health generates feelings of helplessness that can extend into every aspect of daily life.

A program developed at St. Louis University School of Medicine is designed to meet the specific needs of diabetic individuals with significant visual impairment. The program is staffed by a specially trained health care team, consisting of doctors from the St. Louis University School of Medicine divisions of endocrinology, neurology, and cardiology, nurse educators, psychologists, and exercise specialists. Our goal is to help the participants recover independence and control. Visually impaired patients can enroll at no cost in an intensive twelve-week program. They meet three times weekly in an atmosphere that nurtures both group support and individual interaction with the staff. In that time patients are instructed in the use of adapted devices and techniques for diabetic self-management, and are guided through a personalized exercise program.



Marla Bernbaum, M.D., coordinator of the center's Blind Diabetic program.

The supportive atmosphere created by patients and staff envelops the program.

Gaining confidence in their own ability to prepare accurate insulin injections, they learn to use commercially available and handmade insulin dose gauges, or a clicking syringe. Utilizing careful tactile technique and voice-synthesized blood glucose meters, they acquire proficiency in blood glucose self-monitoring. Patients also receive reinforcement regarding the general principles of diabetic and nutritional education.

Participants attend regular monitored exercise sessions located in a sophisticated, fully-equipped gymnasium at the St. Louis University Cardiac Fitness and Rehabilitation Center. The gym has been modified to make exercising as comfortable as possible. A guide rope assists patients as they walk or jog around the indoor track. Chairs are used as supports during warm-up and cool-down routines. Patients can use the weight machines and the rowing machines in a much safer environment than a regular gym provides. There are services and equipment available for blind diabetics elsewhere, but not in a single supervised environment.

Each participant's exercise plan is individually designed, so exercise is done at a safe and effective level with accommodations for cardiovascular and neurologic limitations. Patients receive

Marla Bernbaum, M.D., an assistant professor of Internal Medicine, division of Endocrinology, St. Louis University Medical Center, is a blind diabetic.



Weight lifting is done under the careful supervision of trained staff members.

An important outgrowth of this program is the opportunity to study the psychological and physical characteristics of this unique group of patients, as well as their response to this intensive intervention.

hands-on instruction and guidance from personnel who are trained in exercise physiology and are responsive to potential medical and diabetes-related problems. Individuals are closely monitored to ensure that the heart rate and blood pressure remain in an appropriate range, which is established for each patient through a standardized exercise stress test. Blood sugars are measured before and after exercise, and snacks are provided as needed. Insulin dosages and caloric requirements are carefully adjusted by the staff physician in order to avoid hypoglycemia and to encourage maintenance of proper body weight. Patients appreciate the changes in their bodies and overall health that occur in response to controlled exercise, and become confident in establishing a sensible home exercise routine.

One class session per week is designated as a group support meeting in which members have an opportunity to share emotions and anxieties, as well as positive experiences and resolutions. They are able to help one another dissolve feelings of isolation and face new challenges in a realistic manner. The program participants have varied greatly with regard to age, sex, race, and extent and duration of visual impairment. However, they share a strong common bond which seems to be strengthened by the variety of experiences each person brings to the group. The supportive atmosphere created by both patients and staff envelops the entire program, and is very likely the most important element. Family members and friends are also invited to participate in the program and are encouraged to join several specific family-oriented group support meetings.

One participant expressed the difference the program made to him: "I've learned to do a lot of things on my own now. I'm staying on my diet better, getting around a lot more and feeling better about myself. I also found out I'm not the only one who has problems."

The patients themselves bring additional knowledge and creativity to the program. For example, a number of them, with the aid of sighted friends or family members, have developed accurate and unique handmade dose-guides to fit disposable insulin syringes. These guides have ranged from precisely sawed-down empty shotgun shells to artfully crafted, notched wooden gauges. Many patients devise their own tactile techniques for improving accuracy and ease in preparing insulin injections and for performing blood glucose monitoring. Simple tricks, such as bending up the end of a glucose test strip so that it can be easily located after it has been placed flat on a table, have saved other patients a great deal of time and needless frustration. A patient who had liberated his family members from the task of preparing his insulin injections by developing his own self-management skills found that he was not only happier, but that also there was a general sigh of relief among the family members. Through his positive experience he encouraged more skeptical group members to gain self-care proficiency. These patients also reported improved spirits and relaxation of tensions in their own homes. Other patients have reported that their entrance into the program represented the first social interaction they had undertaken outside the security of their own home since sustaining the loss of their vision. The support of the group provided them with the confidence to undertake other social outings and to enjoy life with an improved perspective.

An important outgrowth of this program is the opportunity to study the psychological and physical characteristics of this unique group of patients, as well as their response to this intensive intervention. The participants are asked to undertake a series of tests at the beginning and at the end of the twelve-week period. The results of standardized

How Retinopathy Develops

JAY A. FLEISCHMAN, M.D.

The risk of developing diabetic retinopathy is higher for patients who have had diabetes for a long time. Approximately 60 percent of patients with diabetes for fifteen years or more will begin to suffer some damage to their eyes. When diabetes develops in childhood or teenage years the likelihood for diabetic retinopathy is increased. Fortunately, only a small percentage of those developing retinopathy will have serious problems with their vision, and even a smaller percentage will become blind.

WHAT IS DIABETIC RETINOPATHY?

Diabetic retinopathy is caused by a clogging of the fine capillary blood vessels which provide oxygen and nutrition to the retina, that portion of the eye responsible for sensing a visual image. These blood vessels once damaged may leak fluid or blood. This may cause a swelling of the retina or form deposits called exudates. Weakened blood vessels often form balloon-like sacs known as microaneurysms which also leak fluid. This form of diabetic retinopathy is known as background retinopathy. It is considered to be the earliest stage of the disease. In approximately 80 percent of diabetics affected it does not progress. In some cases, however, the leaking fluid can collect in the critical central region of the retina known as the macula which is responsible for fine central acuity and color vision. When the fluid (edema) reaches this central region, distance and reading vision may become blurred and in some cases actually progress to legal blindness.

A more advanced form of retinopathy is called proliferative retinopathy. This condition usually starts out as background retinopathy. However, new blood vessels begin to grow on the surface of the retina or the optic nerve. These vessels grow on a ladder-like scaffold in the vitreous gel filling the center part of the eye. On occasion, these fragile new blood vessels may rupture and bleed into the vitreous. The blood may prevent light from being focused clearly on the retina and vision can be abruptly blocked. In addition, as the eye attempts to clear this abnormal blood, scar tissue can form from the ruptured blood vessels and eventually tighten and tug on the retina, pulling it away from its normal position in the back of the eye. Retinal detachment, even if the blood should spontaneously clear, may account for a severe loss of vision and lead to blindness.



ADVANCING RETINOPATHY

HOW IS DIABETIC RETINOPATHY DIAGNOSED AND FOLLOWED?

A complete eye examination performed by an M.D. ophthalmologist is the best means to detect and follow the progression of diabetic retinopathy. It is usually sufficient to examine diabetics with background retinopathy changes on a one time per year basis. Sometimes it is necessary to follow a patient at more frequent intervals (perhaps every three to four months) should certain additional retinal findings be noted (pre-proliferative retinopathy). On occasion a photographic technique known as fluorescein angiography may be used to better evaluate the extent of blood vessel damage.

WHAT TREATMENTS ARE AVAILABLE?

The most common type of treatment offered to diabetic retinopathy patients involves the use of lasers to seal abnormally leaking vessels or to remove new blood vessels. This treatment is usually a painless procedure done in an opthalmologist's office and has had a major impact on both preventing the progression of vision loss and even reversing abnormalities in advanced stages of retinopathy.

Laser photocoagulation therapy is not appropriate for all diabetic retinopathy patients and may depend on location and extent of the retinal problems. Also, if the vitreous is too clouded with blood, it may not be physically possible to focus the laser light beam on the retina. Then it may be appropriate to perform a surgical procedure known as a vitrectomy. In this technique, the blood and vitreous gel are removed so that the retina can clearly be visualized by the surgeon. If scar tissue is present, causing a retinal detachment, it may be cut—allowing the retina to return to a more normal flattened position. The potential success of these treatments may depend on how early the retinal problems are discovered.

Important research is now being conducted regarding new medications which are designed to inhibit the production of an enzyme known as aldose reductase. This enzyme may be causing the changes not only in the eye but in other organs such as the kidneys and peripheral nerves. Much more clinical data must be obtained before this treatment can be proved effective and safe. Only then will it be made available to diabetic patients.

Jay Fleischman, M.D., is an Associate Professor of Ophthalmology at the St. Louis University School of Medicine, Bethesda Eye Institute.

psychosocial questionnaires, exercise stress tests, and laboratory tests reflecting the status of general health and diabetic control are evaluated. This provides the individual with feedback concerning personal progress, and also provides a mechanism for assessment and refinement of the program. It is hoped that the data obtained in this study will be useful in improving responsiveness among health care professionals to the needs of visually impaired diabetic patients and will arouse interest in developing similar programs throughout the country. □

A Team Approach

Promoting Diabetes Self-Management and Independence in the Visually Impaired: A Model Clinical Program

MARLA BERNBAUM, MD
STEWART G. ALBERT, MD
STEPHANIE R. BRUSCA, RN, ANP
AMI DRIMMER, PhD
PAUL N. DUCKRO, PhD
St Louis University School of Medicine
St Louis, Missouri

Despite efforts toward prevention and treatment of eye disease, more than 5,000 Americans develop severe visual impairment due to diabetes each year.[1-3] According to the recent National Health Interview Survey, 4.6% of the estimated 6 million individuals with diabetes in the United States have severe visual impairment or blindness.[4]

General rehabilitation facilities and services addressing only visual impairment are widespread throughout the United States. Persons with blindness alone can learn to adapt to life without vision, and many are able to carry on at a highly productive level. However, the additional support required by the visually impaired individual with diabetes is usually not readily available.[5]

Counseling usually does not address the compounded problems of diabetes and visual impairment, and may not consider the implications of other concurrent and potential complications of diabetes.[6,7] Adequate vision is imperative for conventional diabetes self-management. Visually impaired patients must be instructed in the use of tactile and audio devices and techniques that will permit independent preparation and administration of insulin injections, self-monitoring of blood glucose, as well as selection and preparation of appropriate meals.[8,9]

Exercise is considered an integral part of diabetes management. After severe vision impairment, access to most community exercise facilities is no longer available. The patient needs guidance in undertaking an independent exercise program designed to meet personal limitations.[10-14]

A clinical program for visually impaired patients with diabetes has been created at St Louis University School of Medicine specifically to accommodate the needs of this often-neglected patient subgroup. A description of the program and its formulation follows. Although many aspects of the program are specifically devoted to a prospective research design, it is hoped that many other aspects may be incorporated readily into ongoing programs for rehabilitation for individuals with diabetes and visual impairment.

Program Structure and Content

A program has been developed at the St Louis University School of Medicine aimed at encouraging independence and improved self-esteem for the visually impaired individual with diabetes. This clinical program employs an integrated multidisciplinary approach to include (1) diabetes education focusing on the teaching of skills and devices needed by the visually impaired for diabetes self-management; (2) a monitored exercise program, individually tailored to accommodate visual, cardiovascular, and neurologic limitations; (3) group support with individual counseling as indicated; and (4) a prospective evaluation of measures of glucose control, exercise tolerance, and psychological adjustment. The program was initiated by several St Louis University diabetologists, and was designed through collaboration with consultants in the areas of cardiology, exercise physiology, neurology, and psychology. The pilot project began in the fall of 1985. Intended as an adjunct to general rehabilitation, this program offers the visually impaired individual with diabetes concentrated instruction in diabetes self-management, a safe exercise plan, and opportunities for interaction with peers, as well as a specially trained health care staff. Data obtained at the onset and completion of each 12-week session are compared to assess individual progress and to provide objective feedback for evaluation and modification of the program. In addition, the clinical data base obtained from the participants in this program should contribute to improved understanding and responsiveness among health care professionals to the needs of this unique group of patients. The program development included an extensive preparatory phase, patient induction and assessment, institution of the clinical project, and mechanisms for its evaluation.

Program Development

To create optimal conditions for a successful program, a preparatory phase allowed for training of personnel, modification of the exercise facility, accumulation and evaluation of devices and techniques to be used in teaching

From the Department of Internal Medicine, Division of Endocrinology (Drs Bernbaum, Albert, and Ms Brusca); the Cardiac Fitness Center (Dr Drimmer); and the Department of Psychiatry and Human Behavior (Dr Duckro), St Louis University School of Medicine.

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demonstrations, development of tools and procedures for assessment, and establishment of avenues for patient recruitment.

The program was developed and closely supervised through the collaboration of the diabetologists, exercise physiologist, and clinical psychologist. A health care team was formed consisting of: (1) a diabetes nurse educator responsible for instruction in diabetes education and self-management skills, blood glucose monitoring before and after the exercise sessions, and overall coordination; (2) a dietitian responsible for instruction concerning nutritional information and adaptive devices for meal preparation and cooking; (3) an exercise instructor with medical training; (4) a cardiac rehabilitation nurse responsible for monitoring the subjects during the exercise sessions as well as assisting in exercise instruction; (5) a stress management specialist responsible for teaching methods of stress reduction; (6) a psychologist responsible for psychosocial test administration and evaluation; and (7) a consultant staff including a cardiologist and a neurologist.

A half-day workshop devoted to interaction with the visually impaired was delivered by two rehabilitation instructors from the Missouri Bureau for the Blind. This workshop provided direction in sensitivity training, sighted guide technique, and special communication skills, and was attended by all program personnel. To improve her understanding of patient needs, the diabetes nurse educator accompanied a rehabilitation therapist for the blind during home visits to visually impaired clients and, wearing a blindfold, undertook mobility and orientation training. In addition a physician team member, herself visually impaired due to diabetes, lent personal experience to the development of the program.

Several staff members visited the Missouri School for the Blind to observe established physical education program adaptations. The St Louis University exercise facility, located in the Cardiac Rehabilitation and Fitness Center, was modified through the use of a guidewire around the perimeter of the indoor track. Individual orientation was planned to familiarize visually impaired participants with the physical layout of the gymnasium, and to provide hands-on instruction for the use of the stationary exercise equipment. Numerous tactile and audio devices, as well as specific techniques useful to the visually impaired for diabetes self-management, were accumulated and evaluated for appropriateness. The items to be used in hands-on teaching demonstrations included tactile and clicking insulin syringes, commercial and handmade insulin dose gauges designed to fit insulin syringes, syringe needle guides, glucose meters adapted with speech synthesizers, tactile and talking clocks, scales and timers, and specially adapted kitchen aids used in preparing and cooking foods.[8,9,15-18]

A handbook entitled *Managing Your Diabetes With Visual Impairment* was specifically written for the visually impaired and was professionally recorded for distribution on audiocassettes. A cassette of timed exercise routines and a recorded package of nutritional information, including the ADA exchange diet and supplementary exchange diet listings, were also prepared for distribution to patients.

Protocols for exercise and psychological assessment were tested by program personnel to eliminate aspects that might influence outcome for a visually impaired participant. For example, exercise tolerance tests were evaluated using both treadmill and bicycle ergometer protocols.[19] The latter was chosen to optimize patient comfort and safety. Additional time was allowed for orientation and adjustment to the bicycle ergometer and gas analyzer apparatus utilized during the exercise stress test. A system of hand signals was devised to allow patients to communicate to the test administrator their degree of subjective stress. Psychological tests involving sensitive question sets were prepared on audiocassettes. The patient listens to questions through an earphone and records responses on a second preset recorder, thus maintaining privacy and eliminating bias that might be interposed by a designated reader.

Patient Recruitment

Patients are recruited for participation in the program by referral from agencies serving the visually impaired and local consumer groups for persons with diabetes, as well as through individual contact with local internists, diabetologists, ophthalmologists, and diabetes educators. Program announcements are mailed to targeted professionals and agencies several months prior to the beginning of each session. Public media also have been useful in direct recruitment of eligible participants. Persons who take part in the program are encouraged to maintain regular contact with personal physicians throughout the duration of the program session. Personal physicians are consulted concerning changes in health status and assessment of patient progress.

Patient Assessment and Induction

Patients enrolled in the program are initially assessed through a history and physical examination, including the following laboratory determinations: baseline ECG, BUN, creatinine level, urinalysis, complete blood count, fasting blood glucose levels, lipid profile, and glycosylated hemoglobin level. Extent of peripheral neuropathy is evaluated through standard neurologic exam, test of two-point discrimination, and nerve conduction studies. Autonomic neurologic function is evaluated through measurement of heart rate and blood pressure response to postural maneuvers and deep breathing.[20] The results of the clinical assessment of both peripheral neuropathy and autonomic neuropathy are then used in determining limitations in exercise and tactile ability in the individual's exercise prescription.

All patients undergo an exercise stress test, using a bicycle ergometer with continuous electrocardiographic monitoring and gas analysis. Cardiovascular and peripheral muscular fitness are determined in a prospective manner through measures of oxygen uptake and maximum oxygen consumption.[19] As an additional measure of endurance, patients undertake a 12-minute walk test during which they are asked to walk laps along a track at their maximum speed for a timed 12-minute interval.[21] Although not as quantitative a test of exercise tolerance as the stress test, the 12-minute walk test provides the patient with a more tangible perspective of his or her progress. Patients also perform a simple stretch test so that changes in overall flexibility can be assessed.

Diabetes knowledge is assessed through a multiple-choice questionnaire administered verbally to each patient. The test addresses understanding of hypo- and hyperglycemia, insulin ac-

tivity, nutrition, and complications. Scores before and after participation in a 12-week program are compared and have been used in refining the educational aspects of the program.

Psychosocial profiles are obtained for prospective analysis by asking patients to respond to a series of standardized psychological questionnaires, including the Minnesota Multiphasic Personality Inventory,[22] the Zung Self-Rating Depression Scale,[23] the Rand Mental Health Index,[6,24] and the Rosenberg Self-Esteem Scale.[25] In an additional survey, developed specifically for use in this program, patients are asked to rate their perception of personal satisfaction regarding issues of independence and control in health maintenance.

Rehabilitation Protocol

Six to ten visually impaired individuals with diabetes, enrolled in each 12-week program, meet for three hours every Monday, Wednesday, and Friday morning. To date, 21 individuals, including 12 with Type I and 9 with Type II diabetes, have entered the program. The first half of each morning session is spent in exercise, while the second half is devoted to diabetes education, skills training, and group support. Most of the patients who enter the program either have completed a general rehabilitation program or are undergoing concurrent training for adaptation to daily living and mobility. However, the clinical program is designed to meet the requirements of those who have no rehabilitative skills.

The standard exercise program consists of (1) a 5- to 10-minute warmup, promoting muscular stretching and toning; (2) a 30- to 45-minute aerobic workout; and (3) a 5- to 10-minute cooldown and relaxation period. During the aerobic phase, patients work at individual activities at a level predetermined by general and cardiovascular fitness, with modifications that accommodate personal limitations. For example, patients with active diabetic retinopathy are excluded from activities requiring heavy lifting and forward bending of the head, and blood pressure is monitored carefully to avoid provoking hypertensive excursions that might induce retinal hemorrhages.[2] Patients with tendencies toward hypotension due to vasodilation during exercise may be seated in a low armchair directly behind a stationary bicycle, so that the legs may be maintained near the level of the heart while cycling, allowing for improved venous return. The position also permits security for patients fearing loss of balance while bicycling. The patients may utilize various exercise equipment such as a stationary bicycle, an arm ergometer, a rowing machine, a Universal Gym, or they may walk or jog along an indoor track. During the warmup and cooldown phases, a straight-backed chair is assigned to each patient. For the visually impaired person with diabetes, who often also has significant peripheral and autonomic neuropathy, freestanding exercise may be inhibited because of weakness, a poor sense of balance, and reduced spatial orientation. The chair provides the exercising patient with a secure focal point for orientation and stability. Other exercises that are conventionally performed on the gymnasium floor in a sitting or lying position, or that require forward bending at the waist, are modified and performed while sitting upright in the chair, eliminating the need for forward bending of the head. The participants are guided through the exercise routines by an exercise instructor and nursing staff personnel who have training in exercise physiology and the ability to respond to medical emergencies. Capillary blood sugars are measured, using standard glucose meters, before and after each exercise period. Based on these measurements, changes in insulin regimens or dietary intake are recommended. Carbohydrate snacks are routinely provided as indicated. Heart rate and blood pressure are monitored before and after exercise and at regular intervals throughout the exercise period. Individual exercise prescriptions are modified daily according to predetermined target pulse rates and blood pressures. Patients with known cardiovascular disease are closely supervised and are monitored by telemetry. Patients are taught to measure their own pulse rates, and are encouraged to maintain at least low-level exercise programs at home.

Following the exercise sessions, the group reconvenes to address various topics concerning diabetes, visual impairment, and the role of exercise and nutrition in health maintenance. Principles of general diabetes self-management are reinforced and additional attention is focused on teaching methods for independent administration of insulin and glucose monitoring, utilizing tactile and audio devices and techniques.[8,9,15-18] Each patient receives individualized hands-on instruction, and is provided with ample opportunity for multiple return demonstrations. All educational sessions are led respectively by a diabetes nurse educator, a physician, an exercise physiologist, or a dietitian. An interactive format is employed, encouraging patients to ask questions, express concerns, and share information. Every Friday the discussion period is specifically devoted to group support. Although topics concerning personal implications and consequences of diabetes and visual impairment are selected in advance, patients are encouraged to vent freely while sharing frustrations, emotions, and anxieties, as well as personal resolves and positive experiences.[26] Family members and friends are welcome to visit the program and to join in educational sessions. Several support group sessions throughout the 12-week period are designated as family days.

At the end of each 12-week period, parameters of glucose control, general and cardiovascular fitness, and psychosocial response are compared with baseline values. These data will be published at a later date. The patients are informed of personal progress, and the cumulative data are compiled to determine the objective outcome of the program. Patients are also provided with an opportunity to rate the program in terms of content, staff performance, and personal benefit.

Before the conclusion of the 12-week program, the participants are presented with a package of three audiocassettes, previously described, that are intended to aid in the maintenance of an independent self-management program. Patients are encouraged to contact the center for follow-up instruction and support, and are invited to attend future group support meetings.

Discussion

Diabetes is one of the leading causes of blindness among adults in the United States.[1-3] Although educational literature intended for circulation among the lay population with diabetes has begun to focus more attention on the needs of the visually impaired,[27,28] neither the medical nor the rehabilitation profes-

sions have addressed adequately the issues of blindness superimposed upon diabetes mellitus.[4] Internists and diabetologists strive to forestall eye disease in their patients with diabetes through improved control of blood glucose levels and blood pressure.[2,3,29] The ophthalmologist can detect retinopathy in early stages and, in many cases, can preserve vision, utilizing techniques such as laser photocoagulation, vitrectomy, and retinal surgery. However, after preventative and therapeutic measures have failed, health care professionals are often unresponsive to the rehabilitative needs of visually impaired patients with diabetes. Rehabilitation programs often do not include instruction in diabetes self-management and do not provide a structured physical exercise program.

To date, 21 visually impaired individuals with diabetes have participated in the program. Although the patients range in age from 24 to 66 years, and vary greatly with regard to sex, race, and socioeconomic class, they have related well to one another because they share the common bond of diabetes and vision impairment.

The clinical program described includes several aspects that have been incorporated for the purpose of prospective study. Minimal preliminary assessment should include a general medical overview, an exercise stress test, and a basic appraisal of autonomic and peripheral neurologic function. This evaluation provides an understanding of the patient's needs and limitations, and is essential in designing an appropriate and safe exercise prescription. The success of a specific program in meeting the needs of visually impaired participants with diabetes relies on the adequate advance preparation of the staff and the facility. Continuous communication and exchange between the health care staff and the patients allow for flexibility in responding to individual concerns. The positive subjective response among the visually impaired participants who have attended the sessions at St Louis University School of Medicine suggests the merit of this program. Further subject recruitment and data acquisition are ongoing. As the program continues to evolve, we hope it can serve as a model for similar programs throughout the country.

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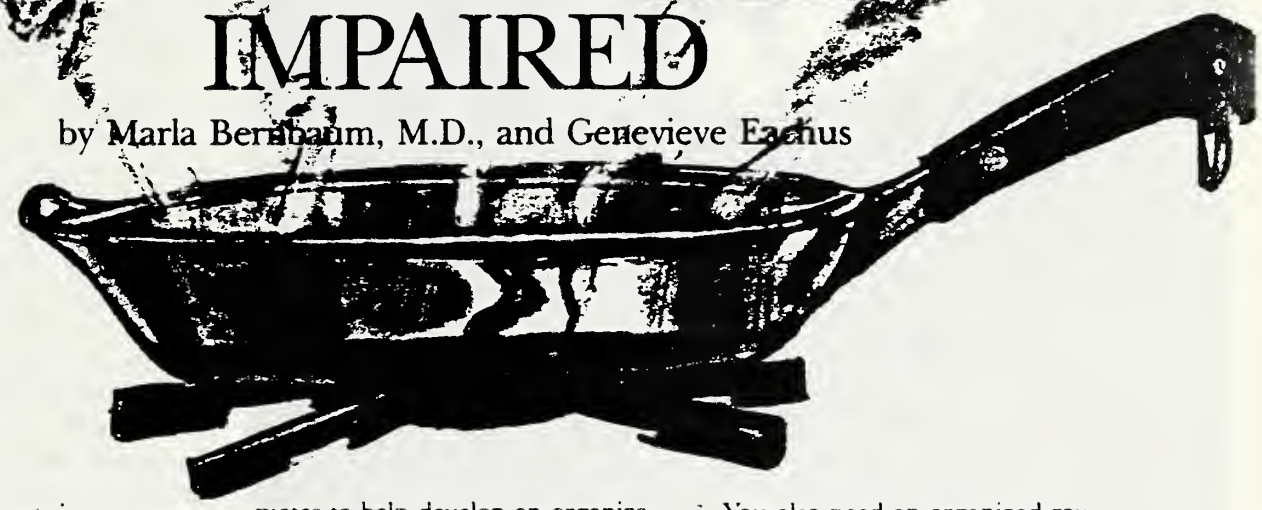
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COOKING TIPS FOR THE VISUALLY IMPAIRED

by Marla Bernbaum, M.D., and Genevieve Eachus



Visual impairment is a common complication of long-standing diabetes—one that may interfere with your ability to prepare appropriate and tasty meals. Anyone with vision loss must take precautions to avoid cuts, burns, and other injuries while working in the kitchen. For someone with diabetes, these precautions are of particular concern because of decreased sensation due to neuropathy and because of the increased possibility for infection and poor wound healing. Fortunately, there are many resources and techniques that help to eliminate fear of cooking hazards and restore independence in the kitchen.

SETTING THE STAGE

Setting the stage for "cooking without looking" involves establishing a well-organized and accessible kitchen. Every item in the kitchen must have its own place and should be returned to that place after each use. If you have poor vision, you cannot peruse the cupboards in pursuit of the salt.

Ask family members or roommates to help develop an organizational system convenient for everyone. After the cupboards are organized, the next step is to create a method for differentiating canned peaches from canned tomatoes and other items packaged in similar containers. For example, you can buy reuseable magnetic labels for braille. Tactile labels shaped like fruits and vegetables solve the problem for nonbraille readers. With a little imagination, you can create a personal labeling system. Put a rubber band around a can to indicate peas and two rubber bands to represent green beans. For some people, keeping fruit and vegetables on separate shelves in identifiable rows may be sufficient.

Use the same logical organization for your refrigerator. Frequently used items should be placed near the front of the shelves. Put large bottles, especially if used infrequently, at the back of the shelf. Don't let Aunt Alice's crock of homemade dill apricots block the path to the Swiss cheese. You can use paper bags in the freezer as storage bins to keep different foodstuffs separate, and create your own labeling system. Then you will never find you are trying to make beef stew out of turkey giblets!

You also need an organized routine for cleaning up. Lids should be replaced immediately. The cap to the catsup bottle, left unattended, will escape into oblivion. A lidless catsup bottle is a potential catastrophe. Regardless of precautions, mishaps will occur. Accidents should be attended to immediately before you lose track of broken glass and splatters. Keep towels and clean-up equipment readily at hand. (Also see *Time-saving tips* on page 40 of this issue.)

CHOOSING EQUIPMENT

It is not necessary to spend vast sums of money for adapted equipment. In most cases, you can use ordinary kitchen equipment. Many products found in catalogs for the visually impaired are also readily available in department and grocery stores. Sometimes, essential items such as timers and scales can be easily converted with tactile markings, thus saving additional expense.

Don't be apprehensive about using the stove. Gas and electric stoves as well as microwave ovens can be operated safely and confi-

dently. Microwave ovens provide almost foolproof cooking for everyone and may be especially appealing to those with visual impairment. (Although the oven itself does not heat up, the dishes may become hot, requiring use of oven mitts or potholders.) Also, crockpots and electric frying pans provide alternatives to working over a hot stove.

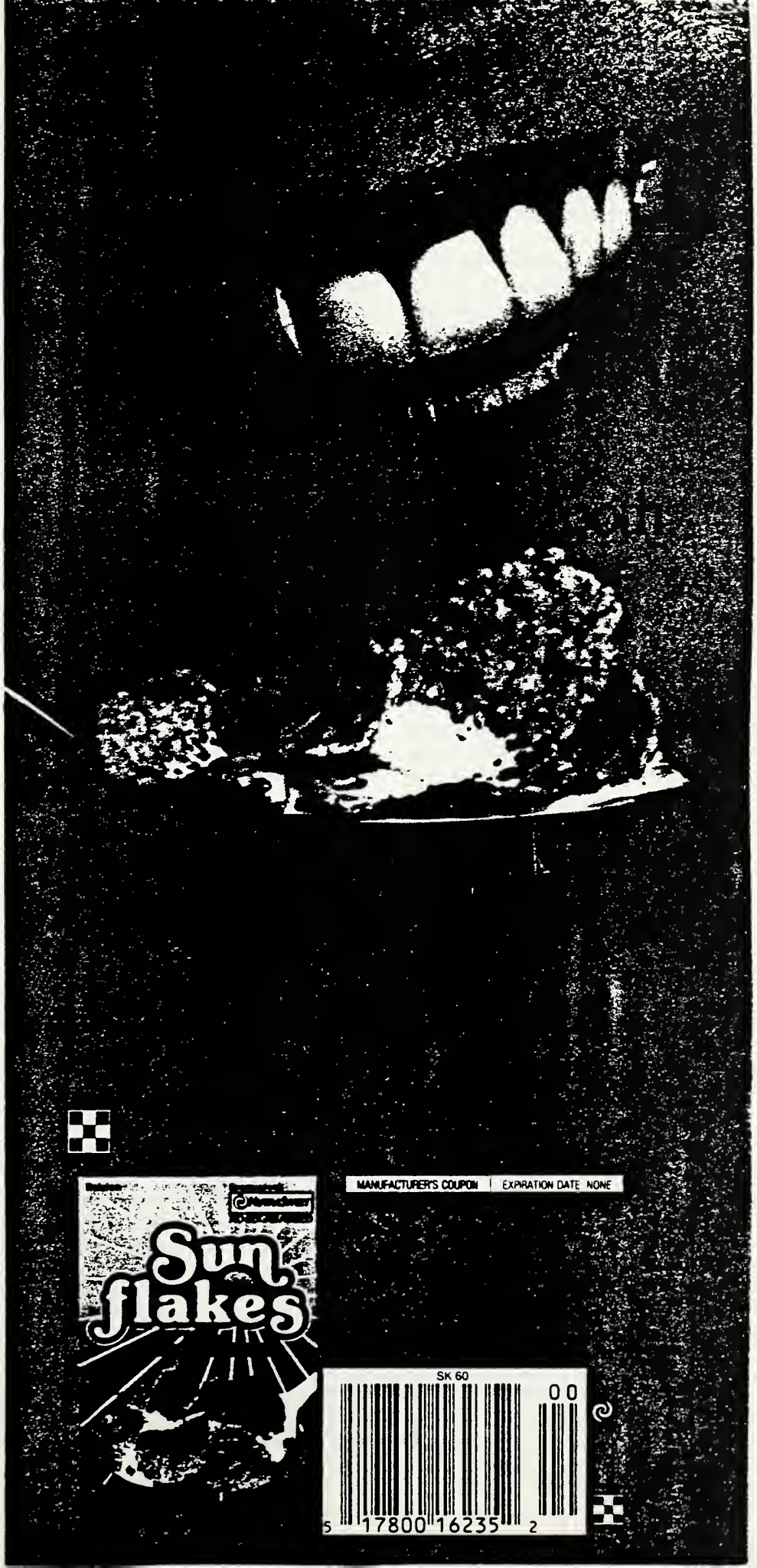
Although some manufacturers produce specially marked dials and touch-panels for the blind, you can easily mark your own equipment with the aid of a sighted friend and some hard-drying glue. High Marks is a brightly colored hard-drying substance that you can buy from the suppliers listed at the end of this article. This substance can be formed into raised, three-dimensional letters or symbols. Because of its bright color, it may be especially useful for persons with some remaining vision.

COOKING TIPS

Instead of relying on your vision, you will learn to depend more on your senses of hearing, smell, and touch. Don't be reluctant to use your hands for measuring and mixing; Julia Child isn't. With a little practice and experience, you will learn to measure ingredients, slice and dice, and maneuver around the stove without fear and anxiety. The following suggestions will help you prepare routine meals as well as splendid culinary feats.

MEASURING

To measure ingredients, buy a set of graduated measuring cups and spoons. One large measuring cup is no longer enough since you will not be able to feel the markings for fractional quantities. The inexperienced cook should keep measuring utensils in a nested arrangement so that any size cup or spoon can be easily located. In addition:



■ To level dry ingredients, hold the cup or spoon over a discard bowl. Then you can draw your finger or the flat edge of a knife across the top of the cup or spoon to level the ingredients.

■ A one-ounce shot glass is useful for measuring more than whiskey. It is the perfect two-tablespoon or one-liquid-ounce equivalent, ideal for measuring oil or lemon juice.

■ You may prefer to transfer liquid ingredients such as vanilla to a wide-mouth jar so that the measuring spoon can be dipped into the liquid. This technique eliminates trying to pour into a spoon over the batter bowl.

■ One tablespoon from a stick of butter or margarine is equivalent to the width of the index finger.

■ To avoid overseasoning food, shake salt, pepper, and other seasonings into the palm in order to judge the right amount.

SLICING AND DICING

The first rule for slicing and dicing safely is to use the shortest knife possible to accomplish the job. This provides increased control and reduces the chance of injury. To make even slices of bread, meat, or vegetables, you may prefer to purchase a Magna Wonder knife, a long, serrated knife fitted with a slicing guide. Although all slicing, chopping, and dicing tasks can be done by hand, like everyone else you may prefer the convenience of a food processor or blender.

For cutting nice, even slices without cutting yourself, vegetables should be held with the thumb on one side of the vegetable and the fingers on the other. The knuckle of the middle finger should be on top and slanted toward the end of the vegetable. Then, by curling your fingers under so they point backwards, you will slice the vegetable, not your fingers. The distance between the knuckle of the middle finger and the end of the vegetable determines the thickness of the slice. Place the flat side of the knife against the vegetable; then slide the knife up to the knuckle and slice in the usual manner. It is a good idea to keep the index finger of the hand holding the knife extended along the top of the knife blade. This allows better control over the knife.

USING THE STOVE

Regardless of your level of visual impairment, the stove is undoubtedly the most feared item in the kitchen. These simple rules should reduce anxiety concerning burns and fire:

■ Always center the pot or pan on the burner before turning on the heat; direct the handle toward the center or the side of the stove. A pan holder can be used to keep the pan from spinning on a burner.

■ People who use a gas stove may want to buy an asbestos-covered aluminum disk; this can be placed over the burner to act as a double boiler. This item is particularly useful if the flame goes out easily when it is turned down.

■ The intensity of the heat can be estimated by feeling the position of the dial. This is a more reliable gauge on an electric stove. If you're buying a gas stove, it would be worthwhile to invest in a model equipped with clicking dials to indicate flame height. With practice, you can also learn to listen for sounds of boiling, simmering, and sizzling to determine heat intensity.

■ It is better to begin cooking with moderate heat intensity to avoid burning food and boiling over pots.

■ It is best to use nylon or wooden utensils because metal handles can get hot. These same utensils can be useful for locating pot handles if the pot is accidentally rotated.

■ For the sake of safety, never wear long, loose sleeves or use a dish towel as a potholder when working around the stove. Elbow-length mitts are available for extra protection.

■ Before turning on the oven, check for proper placement of racks and heating elements.

■ Before removing items from the oven, be certain that there is a cleared surface to put them on.

IS IT DONE?

When meat first begins to cook, it sizzles loudly. Sizzling diminishes as the cooking progresses. Turn the meat or remove it from the heat when you can barely hear the sizzling anymore.

■ Uncooked hamburger or French toast has a smooth slippery surface. When ready to eat, the texture becomes harder and rougher. Test for doneness by gliding a fork over the surface of the cooked food.

■ Baked goods such as cakes, cookies, and breads make a hissing sound while cooking. When the hissing stops, the cake is done. To test for doneness, insert a toothpick or cake tester into the center of the cake. If the toothpick feels dry and clean, the cake is done.

■ Cooking aromas can also provide valuable clues about doneness. Expertise in this area tends to become second nature with experience.

■ Do not overlook the importance of adhering to prescribed cooking times.

TIME-SAVING TIPS

■ Splatter guards confine hot, popping grease and sauces to the pan, where they belong.

■ It is easier to fill a pie shell when it

is resting on the oven rack. That way you will not have to clean up pie filling that might have spilled on your way to the oven.

- Placing foil-covered cookie sheets under any baking dishes that may run over will eliminate nasty clean-up chores.
- Dividing batter evenly into layer-cake pans or loaf pans can be difficult. Use a measuring cup or short-handled ladle to ensure even distribution of the batter. Use a canning funnel to fill muffin tins.
- A tuna fish can with both ends removed makes a convenient egg ring, which is useful in locating the egg for easy turning and serving. Oiling the inside of the ring will prevent sticking.
- Use a double spatula to turn hamburgers or pancakes.
- Use a large colander to drain pasta and vegetables as well as hot grease from cooked meats.

SERVING TIPS

When pouring a cold beverage into a glass, curl the index finger of one hand over the cup or glass so that the liquid level can be sensed before it reaches the top. If the beverage is either very hot or very cold, wrap one hand around the glass or cup so that you can feel the level of the temperature change as the cup or glass is filled.

If you have severe diabetic neuropathy, you may not be able to sense temperature change or to feel the liquid level with the tip of the index finger. Here are a few tips for eliminating concern about burns and accidents.

- If only one cup of boiling water is desired, premeasure one cup of cold water and pour this into the kettle for heating.
- Use a Hotshot, a device that dispenses one cup of hot water at the push of a button.
- You could use an electronic liquid level indicator, which is a two-pronged battery device that fits over the rim of a cup or glass. An alarm sounds when the liquid reaches the tips of the prongs.
- A small cork or fishing bobber attached to a string can also act as a liquid level indicator. Place the bob or cork inside the cup or glass with the string trailing on the outside. As the liquid level rises, the cork, which is easy to feel, will float to the top.
- If you still have some vision, you should choose a cup or glass that contrasts with the color of the beverage it will contain. It is much easier to see coffee in a white mug than in a black one.
- Entrees intended to serve several persons, such as Swiss steak, can be divided into individual portions before cooking to eliminate guesswork at the table.
- Serving utensils such as tongs, double turners, two-handled cake servers, and pie guides are handy substitutes for conventional serving spoons, forks, and spatulas. You can use your soup ladle or measuring cup to also serve stews and fruit salad.

COOKBOOKS

Many types of cookbooks, both practical and exotic, are available on audio cassettes through the Talking Book program of the National Library Services for the Blind and Physically Handicapped. Cassette, large-print, and Braille cookbooks are also prepared by numerous organizations serving the visually impaired and also by well-known commercial firms, such as Betty Crocker. Cookbooks that have been recorded during the last several years are usually voice- or tone-indexed, permitting pleasant browsing and easy location of recipes. Many visually impaired cooks enlist friends and family members to record favorite recipes on cassette or to transcribe Braille recipe files.

The room beyond the pantry is not a chamber of horrors. By following a few basic guidelines for safety and efficiency, you can be the chief cook and bottle washer, as well as the gourmet chef. With organization, a few adaptive skills, a sense of adventure, and a spark of creativity, you will soon feel very much at home in the kitchen. □

Dr. Bernbaum is Assistant Professor of Internal Medicine in the Division of Endocrinology at the St. Louis University School of Medicine, and Ms. Eachus is a rehabilitation teacher of the blind working for the state of Missouri, in St. Louis, Missouri.

HOW TO BUY PRODUCTS FEATURED IN THIS ARTICLE

The special products mentioned in this article are available from different sources and may also be purchased from the catalogs provided by the following sources:

AMERICAN FOUNDATION FOR THE BLIND
15 W. 16th Street
New York, NY 10011

AMERICAN PRINTING HOUSE FOR THE BLIND
1839 Frankfort Avenue
Louisville, Kentucky 40206

INDEPENDENT LIVING AIDS
1500 New Horizons Blvd.
Amityville, New York 11701

VIS AIDS, INC.
102-09 Jamaica Avenue
Richmond Hill, New York 11418

VISION FOUNDATION, INC.
2 Mt. Auburn St.
Watertown, Massachusetts 12172

INJECTION AIDS FOR

Guidelines for choosing the device best suited to the patient's particular needs.

VIRGINIA A. BOYLES

Diabetic patients who are visually impaired need not depend on others to give them their injections. Seven devices are available that help persons with limited vision withdraw an accurate dose of insulin. Use of six of these devices depends on a person's senses of touch and hearing rather than sight. The device selected depends on the kind and amount of insulin a person is taking and on his dexterity.

Explicit instructions and diagrams accompany all devices. As a rehabilitation worker, I find it helpful to demonstrate to the person the devices that would suit his requirement and then let him choose. When he has selected one, I consult with his physician. The physician or nurse teaches the client how to use and set the apparatus. I can provide follow-up in the home.

Two questions that are frequently asked are "How do I keep air bubbles from getting into the syringe and affecting the measurement?" and "How do I know when the bottle is empty?" To prevent air bubbles, I suggest that the client, after inserting the needle into the insulin bottle, push the plunger in and out a few times before pulling out the plunger for the final measurement. This action lubricates the syringe, making it difficult for air bubbles to enter as the insulin is withdrawn.

To determine whether a bottle is empty, I suggest that the person shake

VIRGINIA A. BOYLES, B.A., is a rehabilitation teacher and field representative with the Maine Institution for the Blind, Portland.





The adjustable positive stop of the Cornwall metal holder on the Becton, Dickinson Co. syringe (upper left) makes it possible to withdraw an accurate dose. With the insulin syringe MES260 (upper right), a nut is rotated, producing a click that is heard and felt. Dosage is determined by the number of clicks. When the double lock rings are set on the Hill Accurate Insulin Syringe from Via-Med Products (bottom right), a click is heard and felt as the plunger is drawn back.

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BLIND DIABETIC PATIENTS

the bottle lightly (vigorous shaking can damage the insulin), listening for the sounds that indicate whether any insulin remains. I also suggest keeping a count of the number of injections per bottle to predict when the last dose will be taken. I recommend leaving a small amount of insulin in the bottle to avoid having the bevel of the needle extend beyond the insulin level. Finally, the client can ask a sighted person for help.

Which device is selected may be determined by which insulin is prescribed. The two basic types of insulin are long acting—also called NPH, Lente, or cloudy—and fast acting, or regular or clear. Both kinds of insulin are produced in three strengths. From weakest to strongest, they are U40, U80, and U100.

Many people take only a long-acting insulin in the morning, for example, 10 units of NPH. If they take a combination of long- and fast-acting insulins, say 30 units of NPH and 10 units of regular, they can combine the two insulins in one syringe, but both insulins must be of the same strength.

Here are the aids that can help the diabetic patient maintain his independence.

INSULGAGE This is a small, plastic gauge resembling a pack of matches and sized in units, one gauge per dosage level. Each gauge is constructed so that when it is attached to the syringe the correct number of units will be drawn up. A notch at the front of the gauge fits over the plunger. The gauge and the plunger are pulled back until the gauge drops firmly into place between the plunger end and the barrel, a distance equal to the distance that a sighted person would withdraw the plunger. The number of units is printed on the gauge in large print, raised print, or braille. Two gauges could be used for a combination of insulins. For 5 units of fast-acting insulin and 10 of long-acting, a 5 and a 15 gauge would be used, the 5 for fast acting being placed on the syringe first.

These gauges are used only with B&D Long or Jelco disposable syringes and are available in 100 sizes for all strengths. A complete demonstration set, individual gauges, or detailed information can be obtained from Meditec, Inc., 9485 E. Orchard Dr., Englewood, Colorado 80110l

DISPOSABLE SYRINGES FILLED BY A SIGHTED PERSON AND STORED If only one insulin is used, the syringe may be filled up to three weeks in advance. If a combination of insulins is used, the insulin can be withdrawn up to three weeks in advance only if U100 insulin is used. If a combination of long- and fast-acting U40 or U80 insulin is used, the syringe must be filled only a short time before injection, to prevent an adverse settling of the insulins. Corrections in the new U100 eliminate this reaction.

DOS-AID This is a plastic tray which can be adjusted to hold both syringe and insulin bottle. The needle is positioned to enter the center of the bottle top. A plunger stop is set to stop the plunger when it is pulled to the correct measurement. Any type of disposable syringe can be used. Care must be taken to assure that the needle punctures the stopper thoroughly as the bottle does not fit snugly. This device will be improved in the near future. It costs $8.95 and is available through the American Foundation for the Blind, New York City.

CORNWALL, BECTON DICKINSON ADJUSTABLE POSITIVE STOP This is a metal, slightly complicated holding device that covers most of the syringe. Because of its size, the positive stop sometimes frightens a client. This dose is set with plunger springs and lock rings inside and outside the container. This device may be used with regular or disposable needles, but only with a U80 or U100 glass syringe. It is accurate. A complete



With the Dos-Aid Syringe Filling Device, the plunger is pulled back to the plunger stop for the correct dosage.

unit costs $14.50; a replacement syringe, $5.25. If this device is used more than one year, the cost will be less than disposable syringes. It is available through the American Foundation for the Blind, New York City.

HILL ACCURATE DOSAGE INSULIN SYRINGE This is a glass syringe, a U80 scale, with a metal plunger rod containing adjustable lock rings that are set by a sighted person. The plunger must be held against the side of the barrel as it is pulled out. A click is heard and felt when the ring passes the barrel end, signifying that the dose has been withdrawn. I have found this device to be inaccurate by 4 units. It is available at $6.95 from the American Foundation for the Blind, New York City.

INSULIN SYRINGE MES 260 It is a precision device developed in Holland consisting of a glass barrel inside a 3½-inch metal casing. The number of units to be drawn up is determined by an audible click, with one click representing 4 units of U80 or 2 units of U40. The click can also be felt as an arm-type lever is manipulated. The click may be advantageous to those who have decreased finger sensitivity. This device is usable only for dosages divisible by four if U80 insulin is used or divisible by 2 with U40. It costs $19.95 and is available from the American Foundation for the Blind, New York City.

EISELE TRUSET SYRINGE This device consists of a thin, metal spring and stop catch which fits over a regular glass syringe. I have found that dosage may vary by several units. The metal device must be handled with care to avoid breakage. It is available from Eisele and Co., 715 Massman Drive, Nashville, Tenn., 37210.

Here are six situations that patients might present and suggested solutions for each.

1. A woman whose husband travels frequently on business is often alone. She takes 20 units of long-acting (NPH) and 10 units of fast-acting (regular) U80.

Insulgage would be ideal because it is the only device that can be used to draw up a mixed dosage that includes U80. If she were on U100, she could have her husband fill the syringes before he left on his trip and store them.

2. A man who lives alone and has poor finger sensitivity takes 40 units of U40.

Dos-Aid might be best since he does not have to mix insulins and since the holding device, quite sturdy, also guides the needle into the center of the bottle top. There are no notches to fit. Dos-Aid can be used with disposable syringes to avoid sterilization problems, is accurate, simple to learn to use, and costs less than $10.00.

3. A bright young man is extremely concerned about taking exactly 36 units of NPH U80.

A Cornwall, although slightly old-fashioned and not usable with disposable syringes, is highly accurate and sturdy. Once the complicated technique is mastered, he might find it satisfactory. Dos-Aid or Insulgage could also be used.

4. An elderly woman living alone wants to use disposable syringes. She takes 20 units of NPH and 5 units of regular U80.

Insulgage is the only device usable with U80 insulin and mixed dosages.

5. A deaf and blind man takes 25 units of NPH U80. He lives with his parents but wants to be independent.

Insulin Syringe MES260. Touch can be used to determine measurement. If he is taking a mixed dose, he could give himself two injections.

6. A boarding home resident visits relatives overnight. He takes 20 units of NPH U100 and 5 units of regular U100.

A sighted person can fill and store the mixed dosage in disposable syringes up to three weeks in advance since this man is taking U100 insulin. He might prefer Insulgage for traveling, because a filled syringe may be discharged accidentally.

METHOD COMPARISON TABLE

Device	Accurate Within One Unit	Simple to Teach	Used to Combine Insulins	Costs Less Than $10.00	Used with Disposable Syringes	Available in U100 Strength
1. Insulgage	X	X	X	X	X	X
2. Disposable syringes filled and stored	X	X	X/O*	X	X	X
3. Dos-Aid	X	X		X	X	X
4. Cornwall Becton Dickinson Adjustable Positive Stop	X					
5. Hill Accurate Dosage Insulin Syringe		X		X		
6. Insulin Syringe MES 260	X					
7. Eisele Truset Syringe				X		X

*Only if using U100 insulin

1989



BUYER'S GUIDE TO DIABETES PRODUCTS

American Diabetes Association®

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1989 BUYER'S GUIDE TO DIABETES PRODUCTS

There's no denying it: Diabetes is an expensive disease. Consider what people in the United States pay for diabetes products each year. $205 million for insulin. $279 million for syringes. $342 million for blood- and urine-glucose testing supplies.

Fortunately, though, diabetes doesn't have to break the bank—if you know how to be a smart shopper. This guide will help you find the best diabetes care supplies for your money.

Start by deciding what supplies you need. Your doctor and diabetes educator can help you pick the supplies that are necessary and useful for your care.

Think about what features you really need, especially in big-ticket items like insulin pumps or blood-glucose meters. There's no "one size fits all" when it comes to diabetes supplies.

For example, if you're trying to decide on a blood-glucose meter, it might be most important to you to have a unit that is small and easy to carry. Or, you might want a meter that makes testing as simple as possible. Then again, the ability to store glucose readings and transfer data to a computer might be the most important feature in a meter. Among today's meters, there's one for virtually any need and life style.

Once you've decided what you need, try to develop a budget for the supplies you're purchasing. Making a budget can be an eye-opener for many people who have never tallied the costs of their diabetes care. Still, a budget can help you predict your expenses and pinpoint potential areas for savings.

For some items, you will have little leeway in cutting costs. If you have insulin-dependent diabetes, for example, there's no way to safely cut back on your insulin purchases.

But for other items, you'll have a question mark on a line in your budget. Should you invest in a blood-glucose meter? Should you use a pump rather than insulin syringes?

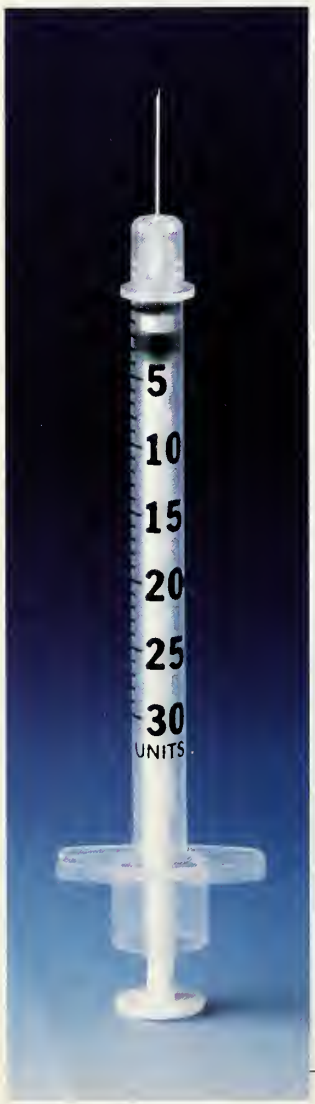
Again, there's no one answer that's right for everyone. Your doctor and diabetes educator can advise you whether the benefits of a type of therapy outweigh its costs. Remember not to get too focused on the bottom line. A meter may be expensive, but if your doctor believes it will help you prevent an insulin reaction or a future complication, its cost may be money well spent.

Finally, when you've decided what you need and how much you can pay, look through this guide for the products that suit you and your pocketbook best. You might want to bring the guide to your doctor's office visit to see whether your doctor agrees with your purchasing plan. If so, shop around for the best prices at mail-order pharmacies and chain and independent drug stores.

The costs of diabetes care in the United States are high and headed higher. But you don't have to become part of that national statistic if you learn to get the most from your diabetes care dollar.



"Thanks, B-D. The 3/10cc Insulin Syringe is just what the doctor ordered."



Now that more and more doctors are prescribing smaller but more frequent injections of insulin, the B-D 3/10cc syringe has all sorts of advantages.

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BETTER B-D DIABETES CARE



Self-Testing

By Donna Tomky, R.N., A.N.P., C.D.E.

Ask anyone involved in the treatment of diabetes about the most significant technological advancement of the past 10 years and the answer most likely will be the invention of portable systems for self-monitoring of blood glucose (SMBG).

During the past several years, SMBG technology has been improving. Today's meters are cheaper, smaller, easier to use, and less sensitive to mistakes in technique.

Regardless of the meter, all self-blood tests start the same way. First, you prick your finger for a drop of blood and place the drop on the target area of the strip or sensor.

With most meters, you then wait for a set length of time, remove the blood from the strip, and place the strip in the meter. You get an immediate readout of blood glucose expressed in milligrams per deciliter (mg/dl).

Today's meters work by different methods. Most of the traditional meters are what are known as "reflectance" meters. In these, the meter shines a beam of light on the colored test pad and measures the amount of light reflected. Naturally, a light color will reflect more light and a darker color will reflect less light. The meter translates the amount of light reflected into a precise blood-glucose reading.

Newer meters like the LifeScan One Touch, Baxter ExacTech, and CPI Direct 30/30 eliminate the need to time the reaction or remove the blood sample. With these, you apply the blood sample to the strip or sensor already in the meter.

These meters use different technology than traditional reflectance meters. The One Touch is similar to the earlier meters in that the glucose in the blood reacts with a chemical on the strip, producing a color change. By shining two beams of light on to the underside of the strip, however, the meter is able to read the color change while the blood is still on the strip.

The ExacTech meter operates in a different manner. The blood is applied to the target area on one end of the test strip, and the opposite end is inserted into the meter. The reaction of the blood glucose with the chemical on the target area of the strip produces a small electric current. The meter measures the intensity of this current and translates it into a numerical blood-glucose reading. The Direct 30/30 operates in still another manner. It has a reusable membrane cartridge that measures glucose in a drop of blood by an electrochemical sensor.

Features

Do a little homework before you buy a meter. Start by thinking about the features you'll need. Also talk with your doctor or diabetes educator about the features they recommend. Here are the main features you should evaluate:

- *Size.* All of meters currently available weigh less than a pound and are portable. If small size is your primary concern in choosing a meter, the pen-sized ExacTech may be worth considering.
- *Time for test.* Currently available meters take between 30 seconds and 2 minutes to use.
- *Ease of use.* Meters that do not require removal of blood from the strip or timing of the reaction offer greater convenience. Moreover, they may be less prone to errors caused by mistakes in your testing technique.
- *Voice.* If you are visually impaired, you may want to select a meter that gives an audio readout of test results. The Diascan-SVM, Glucochek SC Audio from EquiMed Medical Products, and the BetaScan Audio from Orange Medical all give an audio result. Digi-Voice Module, available from Science Products, makes certain meters' digital displays audible. According to the manufacturer, it can be used with LifeScan One Touch, GlucoScan 3000, Glucometer M, and Accu-Chek II. (For more, see page 37.)

Your results will only be accurate, however, if you can properly apply the blood sample to the strip. If limited eyesight makes that impossible, you may want to ask a friend or family member for help in doing your tests. A visiting nurse may also help.

- *Calibration.* Some meters need to undergo a calibration procedure, which varies from meter to meter. Some require calibration with each new bottle or lot of test strips. You enter the calibration code for the current lot of strips or a special calibration strip supplied with the test strips inputs that information automatically. The meter then adjusts itself to any slight difference between batches of test strips. Other meters are factory calibrated and come supplied with a confidence strip. The confidence strip gives you a known reading when inserted into the meter. Another method of calibration is the use of daily calibration solution.

To further test the precision of the meter, strips, and your technique, all meters have "control solutions" available. These liquids mimic blood with a set glucose level. You test with the control solution as if you were testing your blood—only this time you know the answer ahead of time. Control solution should be used regularly, espe-

continued on page 8



Blood-Glucose Monitors And

Note: All prices are accurate as of August 1988. Prices (and products) are subject to change.

Name and Manufacturer	Sugg. List Price	Size (inches)	Wgt. (ounces)	Test Strip Used	Range (mg/dl)	Test Time
Accu-Chek II (Boehringer Mannheim)	Ask Retailer	3.1×5.9×0.9	7	Chemstrip bG	20-500	2 mins.
Accu-Chek IIM (Boehringer Mannheim)	Ask Retailer	3.1×5.9×0.9	7	Chemstrip bG	20-500	2 mins.
BetaScan Audio (Orange Medical Instruments)	$480	3.9×6.7×1.2	10	TrendStrips	0-400	2 mins.
Diascan-S (Home Diagnostics, Inc.)	$154.50	3.1×5.2×0.6	4.8	Diascan	10-600	90 sec.
Diascan-SVM (Home Diagnostics, Inc.)	$635.50	3.1×5.2×0.6	4.8	Diascan	10-600	90 sec.
Voice Module		3×6×1.25	12			
Diatron (Diatron Biomedical)	$150	3×5×1.2	6	Diatron	11-432	2 mins.
Direct 30/30 Glucose Sensor (CPI/Lilly)	$295	2.7×4.5×0.6	4.1	No test strip used	40-400	30 sec.
ExacTech (Baxter Healthcare Corp.)	approx. $200	5.4×.414 diameter	less than 1	ExacTech	40-450	30 sec.
Glucochek SC (EquiMed Medical Products)	$178	2.7×6.5×0.9	7	Chemstrip bG	10-400	2 mins.
Glucochek SC Audio (EquiMed Medical Products)	$479	2.7×6.5×0.9	7	Chemstrip bG	10-400	2 mins.
Glucometer II (Ames)	$179.95	2.5×5×0.9	7	Glucostix	40-399	50 sec.



Data Management Systems

Battery	Warranty	How Calibrated	Control Sol	Features
1-J type (1,000 tests)	2 yr.	automatic with lot specific program strip	yes	Audiocassette and free educational videocassette; Technique error notification; Strip guide removable for cleaning; Visual backup; Connecting port to Merlin Electronic Logbook. Merlin (check with retailer for price) stores 250 records; Each record can hold all regular logbook information: glucose, time, date, diet, exercise, insulin (2 types). Also available optional Merlin Diabetes Data Management system software and Merlin Printer
1-J type (1,000 tests)	2 yr.	automatic with lot specific program strip	yes	Audiocassette instruction tape; Technique error notification; Strip guide removable for cleaning; 30-value memory; Beeper privacy switch; Visual backup; Connecting port to Merlin Electronic Logbook (see above description)
rechargeable battery, charger supplied	1 yr.	automatic self-calibration	yes	Audible readout of test results; Cassette instruction; Red LED display; Confidence strip supplied; Warning buzzer sounds when machine on but not in use
J type ,500 tests)	2 yr.	button calibration (with safety lock) by lot of test strips	yes	Procedure requires no hanging drop of blood; extreme temperature warnings, below 41°F reads *cold* and above 98°F reads *hot*; Confidence strip supplied; Technique error notification; Has memory of last 10 readings; Audio signal emitted during test process can be turned off
1-J type (1,500 tests)	2 yr.	button calibration (with safety lock) by lot of test strips	yes	Voice Module announces key words and phrases required for testing including final results. Special order item
2 power options: internal power supply or batteries	2 yr.	10 sec. calibration using unreacted test strip		Confidence strip supplied
7-volt	1 yr.	30-sec. calibration	yes	No reagent strip used, replaceable sensor cartridge provides unlimited testing for 30 days (meter comes with 2 cartridges); No hanging drop of blood required; Display indicates when cartridge or battery need changing; Memory stores most recent reading
non-replaceable batteries good for 2 yrs. (4,000 tests)	2 yr. (extendable to 4 yr.)	by lot with calibrator in each package of 50 test strips	yes	Simple 3-step, 30-second procedure; Eliminates blotting, wiping, and timing steps; Test results do not depend on these blood-application techniques; Individually-wrapped foil strips enhance system's portability
9-volt alkaline (3,000 tests)	2 yr.	calibrates automatically to unreacted test strips	yes	Half strips may be used with adaptor; Strip splitter with adaptor, sugg. retail $29.95; Optional Datalogger stores 400 readings; Datalogger sugg. retail $93.50
9-volt alkaline (3,000 tests)	2 yr.	calibrates automatically to unreacted test strips	yes	Electronic tones signal procedure and test results; Cassette instruction as well as braille and large type/picture instructions; Assistive device for placement of blood on test strips; confidence strip supplied
9-volt ,000 tests)	2 yr.	single-button calibration by lot of test strips	yes	Cassette instruction tape; Check strip (same as confidence strip); Strip guide removable for cleaning; Automatic turn off after 5 mins.

chart continued on page 6



Blood-Glucose Monitors And

Name and Manufacturer	Sugg. List Price	Size (inches)	Wgt. (ounces)	Test Strip Used	Range (mg/dl)	Test Time
Glucometer II with memory (Ames)	$195	2.5×5×0.9	7	Glucostix	25-399	50 sec.
Glucometer M (Ames)	$240	3.3×6.6×1.5	11	Glucostix	25-399	50 sec.
GlucoScan 3000 (LifeScan)	*	2.9×5×0.8	5	GlucoScan	25-450	1 min.
One Touch Blood Glucose Monitoring System (LifeScan)	*	3×5.8×1	6	One Touch	0-600	45 sec.
Romeo (Diva Medical Systems, Inc.)	$595	3×5.4×0.6	6.4	Chemstrip bG	20-399	2 mins.
Tracer (Boehringer Mannheim)	Ask Retailer	2.5×5.1×0.8	3.4	Tracer bG	40-400	2 mins.
TrendsMeter (Orange Medical Instruments)	$150	2.5×5×0.7	4.5	TrendStrips	0-396	2 mins.
Visual Strip Reader						
Chemstrip MatchMaker Visual Strip Reader (Boehringer Mannheim)	$29.95	3×2×0.5	1.2	Chemstrip bG (501)	20-800	2-3 mins.

**not available*



Data Management Systems *(Cont.)*

Battery	Warranty	How Calibrated	Control Sol	Features
/9-volt 1,000 tests)	2 yr.	single-button calibration by lot of test strips	yes	Cassette instruction tape; Check strip (same as confidence strip); Strip guide removable for cleaning; Automatic turn off after 5 mins. Stores up to 26 test results
/9-volt	2 yr.	single button calibration by lot of test strips	yes	Cassette instruction; Electronic memory can store up to 338 test results with time and date of each test; Marker buttons enable user to identify special events and delete readings such as control test results and errors; Recall button gives average of last two weeks' blood-glucose values; Allows recovery of specific test results, Optional Glucofacts Data Management System software (sugg. retail $419) and Glucofacts Data Printer (sugg. retail $660)
N-cell batteries 2,000 tests)	3 yr.	factory calibrated, confirm by check strip	yes	Strips individually foil wrapped; Strip guide removable for cleaning; Volume control for audio signals emitted during test process; Sound may be increased or turned off; Memory Bank Data Log stores 29 tests sequentially, interfaces with optional Data Manager. Data Manager functions like an electronic logbook. It stores up to 250 readings, can analyze test results, get standard deviations, plot data on chart, flag certain test results, and print out data. Sugg. retail price $299
N-Cell	3 yr. (money back guarantee)	single-button calibration by lot of test strips	yes	Procedure requires no timing, wiping, blotting, or washing; Display messages in plain English (or other languages, including Spanish) guide user through test; Automatically stores last 250 results; Test strips require less blood; System comes with meter, carrying case, test strips, control solution, Penlet sampling pen, lancets, logbook, instructional audio cassette; Interfaces with optional Data Manager (see above)
-AAA alkaline 6 mos.)	1 yr.	Calibrates automatically to unreacted test strips	yes	Romeo, a pocket-size recorder, includes complete information management system incorporating insulin, diet, exercise, blood glucose, and special events. Stores three months of data (2,500 events), holds recommended therapy; has a built-in blood-glucose meter, recalls 85 tests. Comprehensive analysis, graphs/summaries, assist physician and patient in determining patterns and trends. Security features: dual power supply, self-check test. Options: Juliet ($595) printer/telephone modem for direct link to clinic; Homer Jr. ($150) home software package
-volt alkaline 2,000 tests)	2 yr.	push button lot-specific programming	yes	Audiocassette and free educational videocassette tape; Visual backup; 7-value memory; Beeper privacy switch; Strips require less blood
-J type battery 1,000 tests)	lifetime	automatic self-calibration	yes	Cassette instruction; Confidence strip supplied; Memory stores and recalls 10 readings and calculates average of all readings in memory
5-volt silver oxide tton cell	2 yr.	uses lot specific color wheel	yes	Not a blood-glucose meter; For visual test reading; Simple to use; Focuses on specific color blocks, interpolates and provides test result in digital display; Includes built-in timer and 10-value memory



cially when you are first learning to use your meter.

■ *Memory/Data Management.* Many of today's meters do much more than merely measure blood glucose. Even relatively simple units have a memory for storing blood-glucose readings. And many units now available are full-fledged data management systems for keeping track of many aspects of diabetes care.

With the Romeo system from Diva Medical Systems, for example, a doctor programs a patient's therapy guidelines into the device. The patient then uses Romeo to record information about meals, insulin, exercise, and blood-glucose values (the unit has a built-in meter that reads Chemstrip bG test strips). At the next office visit, the doctor transfers stored data into his personal computer and can view graphs or reports. Data can also be sent from Romeo to the doctor's office by telephone using a modem. If the treatment program needs adjusting to bring blood glucose under better control, Romeo can be reprogrammed.

Other manaufacturers also have powerful data management systems. Boehringer Mannheim's Merlin is an electronic logbook that can store data about blood glucose and insulin injections, and tranfer data to a doctor's computer. Also available are the Merlin Diabetes Management System software and the Merlin printer.

The Glucometer M from Ames can also transfer stored blood-glucose data to a doctor's computer or to a special data printer. Also available are the Glucofacts Data Management System software and the Glucofacts Data printer.

LifeScan's One Touch can download information to the LifeScan Data Manager previously made to print out Glucoscan 3000 meter data.

■ *Cost per test.* In selecting a meter, consider not only the initial cost of the meter, but also the ongoing costs of testing, including strips, control solutions and other testing supplies. Which meter is least expensive for you depends on how often you test. If you test more than twice a day, CPI's Direct 30/30 may have the lowest cost per test. Sensors for the meter (about $24) last one month and can be used to perform an unlimited number of blood tests.

Other Supplies

If you opt not to purchase a meter, you can still get the advantages of blood testing with strips meant to be read visually. With these, you apply a blood sample, wait a certain period of time, remove the blood, and read the strip by comparing the color of the test pad with that on a color chart.

Before you decide to use visually read strips, make sure that you can read the strips accurately. Some people find it hard to match the reacted strip with the color chart. Your doctor or diabetes educator can help you check your results.

Boehringer Mannheim has re-

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Test Strips For Visual Reading

Name and Manufacturer	Package Quantities	Color Chart Increments (mg/dl)	Instructions For Use
Chemstrip bG (Boehringer Mannheim)	25, 50	20, 40, 80, 120, 180, 240, 400, 800	Wipe after 1 minute; wait an additional minute; read. If over 240, wait an additional minute; read. Visual reading can be enhanced with MatchMaker.
Glucostix (Ames)	25 foil wrapped, 50, 100	20, 40, 70, 110, 140, 180, 250, 400, 800	Blot after 30 seconds; wait an additional 90 seconds; read.
Diascan (Home Diagnostics, Inc.)	50	20, 40, 80, 120, 180, 300, 500, 800	Wipe after 30 seconds; wait an additional 60 seconds; read.
TrendStrips (Orange Med. Ins.)	25, 50	0, 20, 40, 80, 120, 180, 240, 400, 800	Wipe after 1 minute; read after 2 minutes. If over 240, wait an additional minute; read.
Visidex II* (Ames)	25	20, 40, 70, 110, 140, 180, 250, 400, 800	Blot after 30 seconds; wait an additional 90 seconds; read.

**For visual reading only, other strips listed above can be used with meter or read visually.*
N/A: not applicable



Finger-Sticking Supplies

Name and Manufacturer/ Distributor	Design: Closed	Design: Open	Type of Release	Features and Supplies
auto-Lancet (Palco)	X		Button release	Comes with 1 regular, 1 deep tip (guard), 2 lancets, case. Guard screws on. Five-year warranty.
Autolet (Ames or Ulster Scientific)		X	Button release	Ulster: comes with 20 platforms (10 each of 2 different depths), 10 Unilets, plastic wallet; also available in Hanger Pack (5 Unilets and 2 platforms). Ames: comes with 10 platforms (regular depth), 10 lancets, plastic wallet.
B-D Autolance (Becton Dickinson)	X		By pressure on end of unit	Flat design; one-piece construction. For use only with B-D Micro Fine Lancets specially designed for this unit (5 starter lancets included).
Dialet (HDI)	X		Button release	Pen-shaped. Comes with 1 regular, 1 deep tip. For safety, blue dot appears when device is armed.
Glucolet (Ames)	X		Button release	Comes with 10 Unilet lancets, one opaque regular puncture endcap, one clear super puncture endcap, multilingual instruction insert.
Monoject Lancet Device (Sherwood Medical)	X		Lever release	Comes with bag of 5 endcaps or box with 10 endcaps. Premeasured puncture depth. Compact and portable.
Penlet (LifeScan)	X		Button release	Pen-shaped. Clear guard; puncture depth controlled by amount of pressure applied by user.
Soft Touch (Boehringer Mannheim)	X		By pressure on button	Comes with two tips (penetration: white–.050″; blue–.095″); pen-shaped, easy-to-use; lightweight; five-year warranty.
B-D Micro Fine Lancets (Becton Dickinson)		X	N/A	Flat-shape design; easy to grip. For use only with B-D Autolance. Package of 100.
Monoject Lancets (Sherwood Medical)			N/A	Smooth tri-beveled point with easy-to-grip ribbed handle. Fits most leading devices.
Easy Stik (Diabetes Supplies)			N/A	These can be used alone or in each of the above units except B-D Autolance and Glucolet.
EV-lets (Palco)		X	N/A	Can be used alone or with all automatic devices.
TrendsLancets (Orange Medical Instruments)			N/A	
Gluco System Lancet 100s (Ames)			N/A	These can be used in either Autolet or Glucolet. Package of 100.
Surelet Blood Lancets Surelet XL (extra long) Blood Lancets (Gainor Medical)		X	N/A	Can be used with all automatic devices, exclusive modified needle cover ensures safe, easy disposal.



cently introduced a device called Chemstrip MatchMaker visual reader with memory intended to help you read Chemstrip bG test strips. You insert the strip into the MatchMaker and turn a color wheel until you find a matching color bar; the device then displays the corresponding blood-glucose value. The MatchMaker features a timer and a 10-value memory.

Another, relatively inexpensive, part of blood testing are lancets. If you find it hard to poke your finger for a drop of blood, spring operated finger-pricking devices are available. Some of these are a closed design that hide the lancet from view. The devices are operated either by pressing a button or by squeezing the unit.

The Payoff

Self-monitoring costs money, and for many people the expense may seem prohibitive. But the information you get from blood testing is invaluable if you hope to achieve tight control of blood-glucose levels.

Some insurance policies provide reimbursement for blood-glucose supplies. But be sure to check with your insurer before you buy. In some cases, Medicare will pay for meters and supplies for insulin-treated people with type I or type II diabetes if your doctor can document that you have previously been unable to achieve good control. But be sure to check with your state Medicare office for any restrictions before you buy.

Even if you must pay for self-monitoring equipment yourself, the money you save by avoiding preventable illness may justify its cost.

Donna Tomky is Education Director and Research Coordinator of the Diabetes Health Center in Salt Lake City, Utah.

Insulin

By R. Keith Campbell, R.Ph., F.A.P.P., C.D.E.

There are more than 35 insulins — including human — currently available in the United States.

Although your doctor will help you decide which insulin or combination is best for you, a few facts may help you understand the choices.

First, there are three characteristics of insulin: onset — length of time before insulin reaches the bloodstream and begins lowering blood sugar; peaking — how long an insulin takes to reach maximum strength; and duration — how long it continues to lower blood sugar.

Now, let's look at these differences in varying kinds of insulins. It's important to remember that times listed will vary with the individual.

- Regular or short-acting insulin, often referred to with a capital "R," usually reaches the bloodstream within 30 minutes after injection. It peaks anywhere from 1 to 5 hours after injection, remaining in the bloodstream about 8 to 16 hours.
- Semilente, a special type of short-acting insulin, usually takes 1 to 2 hours to affect blood glucose. It peaks 3 to 8 hours after injection and lasts 10 to 16 hours.
- Intermediate-acting insulin generally reaches the bloodstream about 90 minutes after injection, peaks 4 to 12 hours later, and stays in the blood for about 24 hours.

Varieties of intermediate-acting insulin include NPH or N, Lente, and human Ultralente.

- Long-acting insulins are strongest 14 to 24 hours after injection. They stay in the blood for 36 hours. Experts believe, however, the long-acting insulins don't peak the same way short- or intermediate-acting ones do. They are most effective in lowering blood-glucose levels in combination with other insulins.

Long-acting insulins include Ultralente, or U. The human Ultralente was introduced last summer. It has a duration of about 24 hours, and provides a slow, continuous insulin release.

Strength

Although all insulins come dissolved in liquids, solutions differ in strength. Most commonly used in the United States today is U-100, that is, 100 units of insulin per milliliter of fluid.

Less common here is the U-40 (40 units of insulin per milliliter of liquid). It's usually found in non–English-speaking countries.

Different insulin strengths call for different syringes — U-40 syringes for U-40 insulin, U-100 syringes for U-100 insulin, and so on.

Sources

The most widely used insulins are still beef, pork, and a beef-pork combination. But they are losing ground to laboratory-manufactured human insulin.

Today, about 40 percent of people using insulin in the United States use human insulin. People with non-insulin-dependent (type II) diabetes and those with gestational diabetes who might need insulin temporarily are usually put on human insulin, as are most newly diagnosed people.

Although beef and beef-pork insulins cost a few pennies less a day than human insulin, the safety and effectiveness of the new human products far outweigh that factor.

Human insulin is desirable for a number of reasons. For one thing, it's totally pure because it doesn't need to be separated out of an animal pan-

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Insulins

Product	Manufacturer	Form	Strength
Rapid acting (onset ½–4 hours)			
Humulin Regular	Lilly	Human	U-100
Humulin BR (for external insulin pumps only)	Lilly	Human	U-100
Novolin R (Regular)	Squibb-Novo	Human	U-100
Velosulin Human (Regular)	Nordisk-USA	Human	U-100
Iletin II Regular	Lilly	Beef	U-100
Iletin II Regular	Lilly	Pork	U-100, U-500
Purified Pork R (Regular)	Squibb-Novo	Pork	U-100
Velosulin (Regular)	Nordisk-USA	Pork	U-100
Purified Pork S (Semilente)	Squibb-Novo	Pork	U-100
Iletin I Regular	Lilly	Beef/Pork	U-40, U-100
Regular	Squibb-Novo	Pork	U-100
Iletin I Semilente	Lilly	Beef/Pork	U-40, U-100
Semilente	Squibb-Novo	Beef	U-100
Novolin R Penfill (Regular)	Squibb-Novo	Human	U-100
Intermediate acting (onset 1–4 hours)			
Humulin L	Lilly	Human	U-100
Humulin NPH	Lilly	Human	U-100
Insulatard Human NPH	Nordisk-USA	Human	U-100
Novolin L (Lente)	Squibb-Novo	Human	U-100
Novolin N (NPH)	Squibb-Novo	Human	U-100
Novolin NPH Penfill (NPH)	Squibb-Novo	Human	U-100
Iletin II Lente	Lilly	Beef	U-100
Iletin II NPH	Lilly	Beef	U-100
Iletin II Lente	Lilly	Pork	U-100
Iletin II NPH	Lilly	Pork	U-100
Insulatard NPH	Nordisk-USA	Pork	U-100
Purified Pork Lente	Squibb-Novo	Pork	U-100
Purified Pork N (NPH)	Squibb-Novo	Pork	U-100
Purified Pork Semilente	Squibb-Novo	Pork	U-100
Iletin I Lente	Lilly	Beef/Pork	U-40, U-100
Iletin I NPH	Lilly	Beef/Pork	U-40, U-100
NPH	Squibb-Novo	Beef	U-100
Long acting (onset 4–6 hours)			
Iletin II PZI	Lilly	Beef	U-100
Iletin II PZI	Lilly	Pork	U-100
Purified Beef U (Ultralente)	Squibb-Novo	Beef	U-100
Iletin I PZI	Lilly	Beef/Pork	U-40, U-100
Iletin I Ultralente	Lilly	Beef/Pork	U-40, U-100
Ultralente	Squibb-Novo	Beef	U-100
Humulin U (Ultralente)	Lilly	Human	U-100
Mixtures			
Mixtard (30% Regular, 70% NPH)	Nordisk-USA	Pork	U-100
Mixtard Human 70/30 (70% NPH Human, 30% Regular Human)	Nordisk-USA	Human	U-100
Novolin 70/30 Penfill	Squibb-Novo	Human	U-100
Novolin 70/30 (30% Regular, 70% NPH)	Squibb-Novo	Human	U-100

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No timing, wiping, blotting or washing.

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Introducing

New One Touch by LifeScan makes glucose monitoring so simple, it's practically "goof-proof." So you can achieve reliable results quickly and easily.

Simple one touch testing. No timing, wiping, blotting or washing.

One Touch eliminates three major stumbling blocks to reliable monitoring: starting the test, timing the test and removing the blood.

Here's how it works: insert the test strip, press the Power button, and apply the blood sample to the test spot. Just one touch to the test spot automatically starts the test. Your result appears in only 45 seconds—with no timing, wiping, blotting or washing.

1. Insert test strip.

2. Press POWER.





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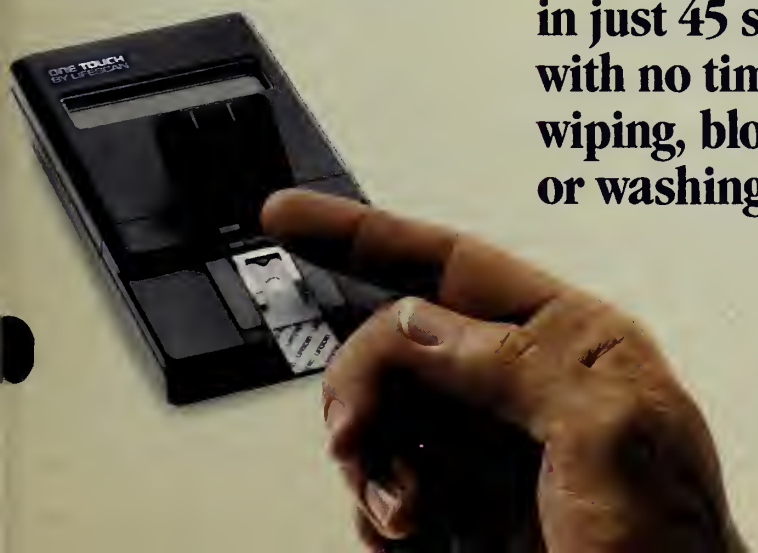
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3. Apply sample.

Result appears in just 45 seconds—with no timing, wiping, blotting, or washing.



*$25 cash back plus $25 trade-in allowance when you purchase the One Touch System between September 1, 1988 and December 31, 1988.

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creas. Pork insulin is the next in line for purity, with beef-pork mixtures last. All insulins, however, are far purer than they were 10 years ago.

Human insulin is usually the fastest absorbed of the insulins. More important, it's less likely than animal sources to cause allergic reactions or, rarely, insulin resistance.

Storage And Safety

Today's insulins should be kept at room temperature, or approximately 70 degrees Fahrenheit. If you buy more than one vial at a time—a potential cost-saver—store the extras in the refrigerator, never in the freezer.

Try not to agitate or shake human insulin bottles. And be careful not to let human insulin get hotter than 95 degrees Fahrenheit.

Do check expiration dates on all bottles, especially if you are going to hold onto them for awhile. Don't use any insulin beyond its expiration date.

It's also important to examine the bottle of insulin closely before you draw it into the syringe. If you see frosting or crystals in the insulin or on the bottle, or if there is clumping or suspensions—little "pieces"—in the insulin, return the bottle to the pharmacy for exchange or refund.

Mixtures And Additives

Two insulins, combined for a mixed dosage, can interact and cause an unexpected effect on blood-sugar levels. If you mix insulins, ask your doctor or pharmacist about this.

All insulins contain added ingredients to prevent bacterial growth and to maintain a neutral balance between acid and base. Intermediate and long-acting insulins also contain "action-prolonging" ingredients. These can differ even among brands of the same kind of insulin, possibly causing slight differences in onset and duration of action. In rare cases, additives can trigger allergic reactions.

Consumer Checks

It pays to shop around for insulins. Prices can vary as much as $4.00 a bottle. But there are other factors besides price:

- *Convenience.* It's good to have a pharmacy close by and easy to get to, and one that's open at the hours you want to shop.
- *Service.* Does your pharmacy deliver? That can be important when you are ill or busy, particularly speedy delivery in an emergency.
- *Professionals.* You might want a pharmacist on duty to answer questions or tell how to store or mix insulins safely. Look for someone who will take an interest and tell you what problems to watch for.
- *Insurance.* Ask your agent whether insulin is covered in your policy. Sometimes it will be covered if you get a prescription.
- *Bulk purchases.* Ask the pharmacist whether bulk purchases would be cheaper. Make sure you'll be using all insulin before the expiration date.
- *Be precise.* Order by type of insulin, maker, full brand name, strength, and species. Don't just ask for "NPH insulin." You might bring a used insulin bottle when you shop.
- *Check labels.* Look at the box or bottle label for above information before paying.
- *Expiration date.* Buy only insulin you can use before the expiration date.
- *Keep alert.* If there has been a recent insulin recall, make sure the control number on the bottle does not match that of the recalled lot.

R. Keith Campbell is Professor of Pharmacy Practice at Washington State University in Pullman, Washington.

By Patricia D. Stenger, R.N., C.D.E.

Injection aids are devices designed to help in the delivery of insulin. Particularly helpful for people bothered by taking shots, these devices simplify injection and make it more comfortable. There are a variety of products on the market, including insertion aids, infusers, insulin pens, and jet injectors.

If you think you might be interested in an injection aid, discuss your options with your physician or diabetes educator. Most diabetes centers, physicians, or diabetes educators have literature or samples of these products for you to look at or even try out. This can help you select the product that best meets your needs. The cost of aids varies considerably, with insertion aids being less expensive, and jet injectors being most costly. You will also want to check the availability of products in your area. Here are some injection aid alternatives:

- *Insertion aids.* For people who have trouble inserting the needle, these spring-loaded devices quickly guide the needle into the skin. They control the depth of puncture as well as the angle. The best feature? Most hide the needle from view. Some of these devices also aid in pushing the plunger down. Many people like the ease of an injection aid and the fact that the injection is over in a flash.
- *Syringe alternatives (infusers).* The Button Infuser is a device that provides an alternative method of insulin delivery somewhere between the usual syringe injection and the pump. With the Button Infuser, a single needle remains in the skin, generally in the abdomen, for 24 to 72 hours. This means that you must guard against skin infections at the insertion site as you would with the insulin pump needle. The Button Infuser is a "portal"



Injection Aids

for injections. You inject insulin with a syringe into the button port instead of directly into the skin.

■ *Insulin pens.* These devices cut down on the amount of "stuff" you have to carry around with you when you are on a multi-dose regimen. Used for injections of Regular insulin, the NovoPen looks like a fountain pen. It contains a cartridge of Novolin or Humulin R and a sterile, disposable needle. Each cartridge contains 150 units of insulin and makes injections fast and easy with one-handed use. The push of the plunger delivers two units of insulin (single unit delivery is possible, but only after an even number of units are given).

The Novolin Pen is new from Squibb-Novo this year. Like the NovoPen, it has a PenFill cartridge, but offers the dial-a-dose selector. It can be used with Novolin R (Regular), Novolin N (NPH), or Novolin 70/30 (70 percent NPH, 30 percent Regular) cartridges. It can deliver from 2 to 36 units of insulin at one time, in two-unit increments.

■ *Jet injectors.* With jet injection, needle and syringe are replaced by a tiny liquid stream of insulin forced through the skin under pressure. Jet injectors may be appealing to people who fear injections, but they are costly and they are not for everyone.

Insulin absorption and delivery seems to be different with jet injection. Jet-injected insulin may be absorbed more quickly and may have a shorter action time. So if you are considering jet injection, you'll want to work closely with your physician and diabetes educator and watch for changes in your diabetes management. Some people are unable to find a comfortable setting for the jet injector because they do not have enough fat tissue and the injection actually gets into the muscle tissue. This, too, can affect the insulin's absorption rate. Others find that their skin is too tough for the insulin to penetrate effectively. It is a good idea to ask for a demonstration or to try out a jet injector before purchase.

> If you think you might be interested in an injection aid, discuss your options with your physician or diabetes educator.

Product training is another consideration. You will want to check on training on use, cleaning, and troubleshooting and on availability of supplies. Injectors require the purchase of manufacturer-supplied adaptors for each insulin bottle.

Currently, all jet injector manufacturers are offering free training videocassettes with the purchase of their product.

Whether or not you opt for an injection aid is a decision that only you can make, but you will want to work with your health-care team in making the decision.

Patricia D. Stenger is diabetes educator with the Eastern Maine Medical Center, Diabetes Education Center in Bangor, Maine, and currently serves on the ADA Board of Directors.

Jet Injectors

Product Name (Manufacturer)	Features	Sugg. Retail Price (as of 8/88)	Comments
Medi-Jector II (Derata)	Size: 6″ × 1½″ Weight: 14 oz	$825.00	Capacity of 100 U of U-100 insulin; 5-year warranty; 30-day trial period. Training video included.
Medi-Jector EZ (Derata)	Size: 6″ × 1″ Weight: 6 oz	$695.00	Capacity of 50 U of U-100 insulin; 14 penetration settings; 3-year warranty; 30-day trial period. Training video included.
Preci-Jet 50 (Distributor: HDI)	Size: 6″ × 1″ Weight: 5.6 oz	$689.00	Capacity of 50 U of U-100 insulin; 2-year warranty; check with local pharmacy about trial period. Training video included.
Vitajet (Distributor: MEC)	Size: 7″ × ¾″ Weight: 8 oz	$549.00	Capacity of 50 U of U-100 insulin; 7 comfort settings; 2-year warranty; 30-day money back guarantee. Training video and manual included.

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At last, there's been a breakthrough in meter simplicity. For more information, consult your health-care professional. For questions regarding product availability, call 1-800-537-3575. For questions regarding technical assistance, call 1-800-527-3339. Or write Baxter Healthcare Corporation, Physician Diagnostics Division, Attn: ExacTech, 1415 Lake Cook Road, P.O. Box 852, Deerfield, Illinois 60015-0852.



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Injection Aids

Product Name (Manufacturer)	Description	Suggested Retail Price (as of 8/88)	Syringe Used	Needle Visible	Adjustable Depth of Skin Penetration	Comments
Insertion						
Busher Automatic Injector (Becton Dickinson)	Spring-loaded metal syringe holder positioned over skin. Activate lever to insert needle.	$23.95	B-D Insulin Syringes U-100 & U-40 (1 cc) Some B-D syringes require reusable adaptors (cost $1.15 to $1.85)	Yes	Yes	
Injectomatic (Sherwood Medical)	Spring-loaded metal syringe holder positioned over skin. Press device against selected site to insert needle.	$19.99	Will accept most 1-cc and ½-cc syringes	No	Yes	Increases injection site alternatives
Autojector (Ulster Scientific)	Spring-loaded plastic syringe holder positioned over skin. Press device against selected site to insert needle and deliver medication simultaneously.	$39.95	Will accept most 1-cc, ½-cc and 3/10-cc syringes	No	Yes	Increases injection site alternatives
Inject-Ease (Palco)	Spring-loaded plastic syringe holder positioned over skin. To insert needle, press button.	$25 to $30	Will accept most 1-cc, ½-cc and 3/10-cc syringes	No	Yes (2 adjustments)	Includes plunger cap to pre-load syringes
Instaject I (Jordan Enterprises)	Spring-loaded, stainless steel syringe holder positioned over skin. Activate lever to insert needle.	$59.95	Will accept all 1-cc, ½-cc and 3/10-cc syringes	No	Yes	Self-contained (No adaptors necessary)
Instaject II (Jordan Enterprises)	Combination syringe injector and blood lancet device. Button-activated.	$49.95	Will accept all 1-cc, ½-cc and 3/10-cc syringes	No	Yes	Self-contained as injector. Lancet adaptor only.
Syringe Alternative						
Button Infuser (Markwell Medical Institute)	Resealable injection port with 27-gauge needle, which remains inserted in skin.	$30.00/10	Any			
Insulin Pens						**Comments**
Accupen (Ulster Scientific)	Cartridge-pen injection device	$59.95				
NovoPen (Squibb-Novo)	Pen-like injection device	$95.00	Use only with Novolin PenFill and PenNeedle			
Novolin Pen (Squibb-Novo)	Pen-like injection device	$39.95	Dial-a-dose selector allows selection of 2- to 36-unit dose in 2-unit increments; PenFill cartridge available in: Novolin R (Regular insulin), Novolin N (NPH), and Novolin 70/30 (70% NPH, 30% Regular)			

American Diabetes Association.

PUBLICATIONS Catalog 1988 1989

This catalog has been created to provide you with the latest information about diabetes and to help you improve your life, so you can live healthier and happier.

Healthy Eating



Healthy Food Choices

This pamphlet contains the basics of good nutrition and meal planning. Designed as a supplement to the *Exchange Lists* or a stand-alone product, this mini-poster is a "beginner's level" meal planning tool. Meal planning at a glance is facilitated by colorful pictures and charts. 1986. Mini-poster. #112

Nonmember: $.50
Member: $.40



Exchange Lists For Meal Planning

This essential publication contains nutritional guidelines you can depend on every day. Its colorful charts, helpful tips on good nutrition and easy-to-use substitution guidelines show you how to balance your diet and gain control over diabetes. 1986. 32 pages. Softcover. #113

Nonmember: $1.95
Member: $1.75

NEW



Healthy Food Choices — Spanish

Now there is a Spanish version of *Healthy Food Choices* that's as helpful and colorful as the English version — but it's specifically designed for the Hispanic community. 1988. Mini-poster. #112S

Nonmember: $.55
Member: $.50

NEW



Eating Healthy Foods

Developed for people with limited reading skills, this colorfully illustrated publication tells the whole *Exchange Lists* story in an easy-to-understand format. It's also perfect for anyone interested in a simplified guide to meal planning. 1988. 16 pages. Softcover. #123

Nonmember: $2.00
Member: $1.75

Exchange Lists For Meal Planning — Large Print

Developed specifically for the visually impaired, this easy-to-read guide is invaluable for people with diabetes who need large print. 1987. 32 pages. Softcover. #115

Nonmember: $3.25
Member: $2.60

Delicious, Nutritional Cooking

All of ADA's cookbooks have mutually exclusive recipes, so each volume has a completely new and different set of delicious things to cook. Plus, they all follow the 1986 revised Exchange Lists For Meal Planning.



Family Cookbook, Volume I

The American Diabetes Association/ The American Dietetic Association

This book is a wonderful treasury of more than 250 delicious, economical, kitchen-tested recipes that the whole family will enjoy. It offers an encyclopedia of nutrition information, tips on eating out, brown-bagging it, weight control, exercise and much more. 1987. Published by Prentice-Hall Press; 448 pages. Hardcover. #102

Nonmember: $19.45
Member: $15.95

Family Cookbook, Volume II

The American Diabetes Association/ The American Dietetic Association

Designed to enhance your everyday meal planning, Volume II includes ways to cut sugar, calories, and costs—plus more than 200 tasty recipes! It includes in-depth advice on weight control and exercise and an explanation of glycemic response. 1987. Published by Prentice Hall Press; 448 pages. Hardcover. #103

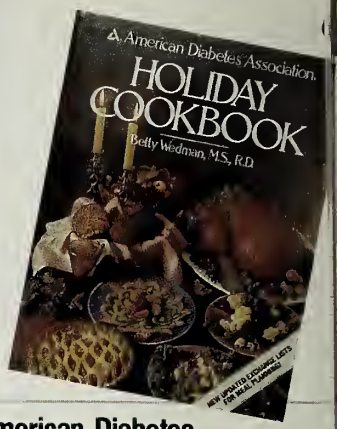
Nonmember: $19.45
Member: $15.95

Family Cookbook, Volume III

The American Diabetes Association/ The American Dietetic Association

This new book adds to the treasury of delicious wholesome recipes designed for people with diabetes. About half the recipes include instructions for microwaving. In addition to hundreds of tasty recipes, Volume III covers microwaving tips and recipes from various ethnic cuisines. 1987. Published by Prentice Hall; 416 pages. Hardcover. #109

Nonmember: $19.45
Member: $15.95



The American Diabetes Association Holiday Cookbook

by Betty Wedman, M.S., R.D.

Now you can enjoy the holidays more than ever before with these festive recipes tailored for individuals and families living with diabetes. From traditional Thanksgiving, Christmas and Hanukkah feasts . . . to refreshing beverages and savory dinners for any occasion, you'll receive more than 175 tempting new recipes for appetizers, salads, soups . . . even bread and cookies! 1986. Published by Prentice Hall Press: 219 pages. Hardcover. #107

Nonmember: $17.45
Member: $13.95

Publications For and About Children

NEW



Kid's Corner

The mini-magazine just for kids with diabetes. It's colorful, easy-to-read, makes learning fun, and answers the questions kids are afraid to ask. Appropriate for children with diabetes aged 8 to 12. 8 pages. Softcover. Available issues are:

Vol. 1, #1—#120A Vol. 1, #3—#120C
Vol. 1, #2—#120B Vol. 1, #4—#120D.

Price for each mini-magazine:

Nonmember: $1.25
Member: $1.05

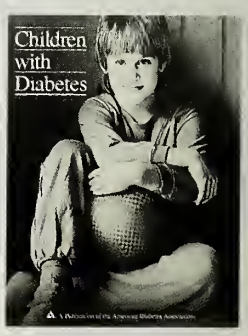
NEW



Grilled Cheese at Four O'Clock in the Morning

This novel for young people aged 8 to 12 is an ADA first. We think it's a unique way to present some important information, and we're sure that many young people who are diagnosed with diabetes will be able to identify with Scott, the main character in the book. In learning to cope with his diabetes, Scott learns some important lessons about himself — and life. 1988. 90 pages. Softcover. #116

Nonmember: $7.45
Member: $6.25

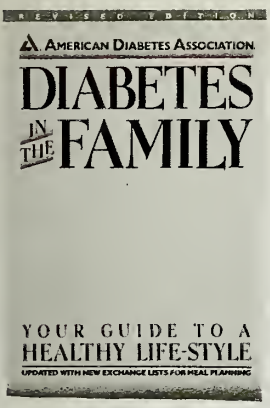


Children With Diabetes

This is essential reading for parents, teachers and others who work with children with diabetes. It covers all the details of diabetes management, takes a sensitive look at children's psychological needs and offers suggestions for promoting a positive and supportive home environment. 1986. 76 pages. Softcover. #106

Nonmember: $9.45
Member: $7.55

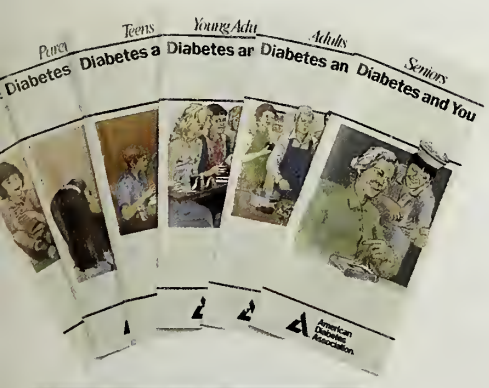
Books Designed Specifically For You



Diabetes In the Family

Written in response to the thousands of questions received by the American Diabetes Association, this book deals with day-to-day issues of diet and self-care as well as lifetime issues such as employment and marriage. It addresses both medical and emotional complications that can arise from diabetes and also outlines the promise of research. 1987. Published by Prentice-Hall Press; 210 pages. Softcover. #117

Nonmember: $11.45
Member: $9.15

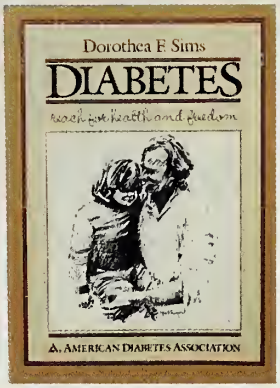


Diabetes and You Series

These are some of the most popular ADA booklets geared to dealing with your special needs, including complications, coping, care and control, at different stages of life. 1987/88. 16-44 pages. Softcover. Available in the following titles:

—Children	#216	—Young Adults	#217
—Parents	#215	—Adults	#218
—Teens	#208	—Seniors	#219

Prices per booklet:
Nonmember: $1.20
Member: $1.00

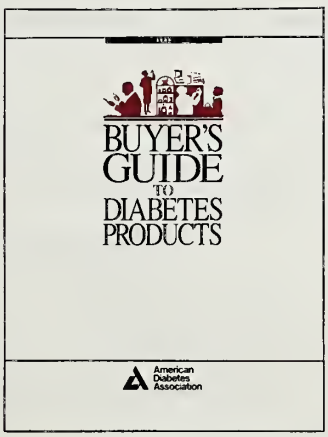


Diabetes: Reach for Health and Freedom

A unique book that offers a brillant blend of high quality science and sensitive humanity. Learn how a person with diabetes not only survives but excels. For both patients and professionals. 1984. Published by the C.V. Mosby Company; 171 pages. Softcover. #119

Nonmember: $11.45
Member: $9.15

More About Diabetes



1989 Buyer's Guide to Diabetes Products

An excellent guide for comparing prices and features from different manufacturers for insulins, insulin pumps, blood glucose meters, injection aids, finger-sticking aids, and test strips. 1988. 40 pages. Softcover. #369

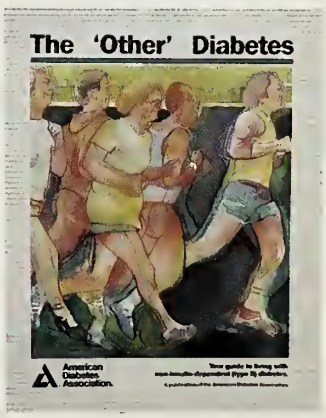
Nonmember: $2.50
Member: $2.10



Diabetes: A to Z

This dictionary can help answer your questions about life style, nutrition, exercise, and much more — all in clear, easy-to-understand terms. Each entry focuses on some aspect of living with diabetes. It's unlike any reference you've ever seen! It's fun for browsing and has lots of useful information for people with and without diabetes. 1988. 104 pages. Softcover. #121

Nonmember: $8.70
Member: $7.30



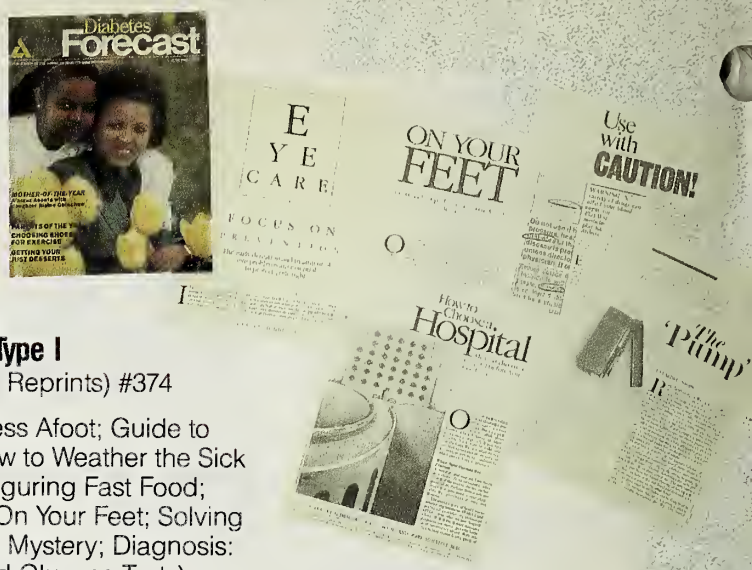
The Other Diabetes

A thorough explanation of non-insulin-dependent (type II) diabetes, this lively, colorful booklet provides practical advice as you learn how to live a happier, healthier life with proper treatment, diet, and regular exercise. 1987. 32 pages. Softcover. #118

Nonmember: $1.50
Member: $1.20

Diabetes Forecast Reprint Packages

Here are some conveniently prepackaged reprints of some very popular articles from Diabetes Forecast — *the magazine for people with diabetes who want to live healthier and happier. Each Reprint Package is grouped in essential topic areas just for you.*



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Especially for Type I

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(Package of 12 Reprints) #371

Back to School: A Parent's Guide; How to Weather the Sick Day Season; Giving Birth; In the Genes; Parenting; If the Flu Worries You; Primer On Insulin Therapy; By The Dawn's Early Light (Early morning high blood-sugar levels); Insulin Reactions; Should We Have A Baby?; Gestational Diabetes; and Insulin: One Drug, Many Choices

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Nutrition Packet

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Guide to Eating Out; Think Thin; Figuring Fast Food; Solving the Food Label Mystery; Winning by Losing; Whiskey Or Water?; Alias: Sugar; and Your Fiber Guide

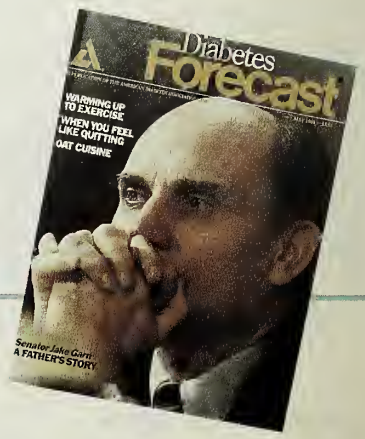
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American Diabetes Association.



Syringes

By R. Keith Campbell, R.Ph., F.A.P.P., C.D.E.

People who need insulin to keep blood-glucose levels controlled most commonly take insulin by injecting a combination of regular- and intermediate-acting forms with an insulin syringe.

Today's syringes allow a person to inject in many different sites (stomach, leg, arm, buttock) with little discomfort. Some of the features common to today's syringes that make injections less painful are:

- Small diameter needles, usually 27 or 28 gauge
- Sharper needle points
- Needles with thin walls and a wide bore that ease the flow of insulin
- Coatings that help the needle slide into the skin.

There are few studies measuring differences in the comfort of injections with different brands of syringes. It may be useful to buy samples of different syringes to see which feels least uncomfortable. When injections are done properly, however, none of the popular brands should cause significant pain.

Syringes are available for use with U-100 and U-40 insulin, although the vast majority of people use U-100 insulin.

Some manufacturers offer special features.

■ *Ease of use.* Different manufacturers offer different features for making it easier to accurately draw up insulin.

B-D's 3/10 cc syringes have widely spaced markings that may make it easier to read and accurately draw up insulin. These syringes are only for people who inject 30 units or less of U-100 insulin. Pharma-Plast syringes have a blue plunger, and Terumo syringes have a clear barrel. Both features are said to make it easier to measure insulin.

A word of caution, however. If you are visually impaired, you may need one of the available syringe magnifiers or dose gauges to properly measure your insulin.

■ *Packaging.* Most syringes come in boxes of 10 or more. Terumo and Monoject syringes, however, are individually wrapped.

■ *Price.* There are significant differences in price between various syringes—as much as $5 per box of 100 syringes. Be sure to select a pharmacy that gives you competitive prices and watch for sales and manufacturers' rebates. But don't choose your syringe supplier solely on the basis of price. Saving money on syringes is not worth driving to an out-of-the-way pharmacy, or losing the help of a pharmacist whose advice you trust.

If you want to cut your costs, consider reusing your disposable syringes. Ask your doctor or nurse educator whether reuse would be appropriate in your case.

If you use the proper procedures, syringes can generally be used up to three times without increasing the pain of injections or the risk of infection. The main precaution is to carefully replace the cap over the needle *without touching the needle with your hands.*

R. Keith Campbell is Professor of Pharmacy Practice at Washington State University in Pullman, Washington.

Syringes

Name and Manufacturer	Insulin	Needle Gauge	Needle Size	Packaging
1 cc syringes				
B-D Micro-Fine IV	U-100	28G	½″	100 (10 packs of 10)
B-D Micro-Fine	U-100	27G	⅝″	100 (10 packs of 10)
B-D Micro-Fine IV	U-40	28G	½″	100 (10 packs of 10)
Monojet Ultra Smooth IV	U-100	27G	½″	100 or 30 (individually wrapped)
Pharma-Plast	U-100	27G	½″	500 (5 boxes of 100)
Terumo	U-100	27G	½″	100 (individually wrapped)
½ cc syringes				
B-D Micro-Fine IV	U-100	28G	½″	100 (10 packs of 10) or 30
Monoject Ultra Smooth IV	U-100	27G	½″	100 or 30 (individually wrapped)
Pharma-Plast	U-100	27G	½″	500 (5 boxes of 100)
Terumo	U-100	27G	½″	100 (individually wrapped)
3/10 cc syringes				
B-D Micro-Fine IV	U-100	28G	½″	100 (10 packs of 10)

DIASCAN-S

Accurate blood

When it comes to self-testing for blood sugar levels, diabetic patients can be their own worst enemy.

That's why there's Diascan-S. The best friend a self-monitoring diabetic can have.

Easy to learn. Even easier to use. In a matter of seconds, the precision-built Diascan-S Sure-Read System delivers accurate blood glucose readings comparable to those obtained in a clinical laboratory.

DIASCAN-S.
Advanced Features. Proven Accuracy.

- **Correlation to clinical laboratory instruments greater than .99***
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- **10-space memory for convenient daily record keeping**
- **Individual training session available through every Diascan-S distributor**



But that's not all.

The Diascan-S is also very forgiving. So highly accurate readings are assured, even when test conditions are less than ideal.

And it's extremely user-friendly.

With Diascan-S, there's never a need to fuss with bothersome test requirements like "a perfect hanging drop of blood." Or fret about special blotting papers. Or worry that the test strip isn't in the meter just right.

Yes, even for people who are all thumbs, totally reliable blood glucose readings are a snap with Diascan-S.

For more information on the Diascan-S Sure-Read System, contact your local Diabetes Training Center or call Home Diagnostics at 1-800-DIASCAN (in New Jersey and outside the USA please call (201) 542-7788).

Discover for yourself why people with diabetes and health care professionals across the country recommend Diascan-S. Hands down.

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The Innovative Name in Diabetes Management

6 Industrial Way West, Eatontown, NJ 07724

*J. Skyler, et al. University of Miami, 1987; data on file.

Diascan is a trademark of Home Diagnostics, Inc.

glucose readings



Even if you're all...



Urine Testing

By Donna Lind, R.N., C.D.E.

Urine testing for glucose cannot compare with blood testing for close monitoring of diabetes. Many people with diabetes, however, still use it as one tool for monitoring diabetes control.

Urine testing is still the method used for detecting ketones. Ketones in the urine are a sign that the body is burning fat instead of glucose for fuel. Elevated blood-sugar levels and ketones in the urine are indicators of diabetic ketoacidosis.

Regardless of which urine-testing product you use, there are general principles to keep in mind:

■ *Check the expiration date.* Do not use materials that have expired. Once the package has been opened, follow manufacturer's directions regarding when to discard. Some products last four months and others last six months.

■ *Read instructions and follow explicitly.* Exact timing is essential to obtain accurate results.

■ *Read the package insert thoroughly.* It will give you valuable information about the product.

■ *Protect urine-testing materials from moisture, light, and temperature extremes.* Do not store test materials in the bathroom, refrigerator, or car glove compartment.

There are several factors to consider when deciding which urine-testing product will best meet your needs.

■ *Availability.* Not all products may be available in all areas. Check with your diabetes educator or pharmacist to see what is available in your community.

■ *Cost.* Most urine-testing products do not vary widely in cost. Costs may vary somewhat between pharmacies, however. Products that measure only glucose or only ketones are less expensive than those that test both. If you usually test for both, however, then combination tests are the better buy.

■ *Accuracy.* All the urine-testing products are reasonably accurate when the test is performed correctly and the results are read in good light. Clinitest, which is a copper-reduction method of testing, detects all sugars. Therefore sugars other than glucose can give false positive readings. Urine-testing strips that use the glucose oxidase method of testing (Chemstrip uG, Clinistix, Diastix, Kyotest, and Tes-Tape) are specific for glucose. These tests should be used by pregnant women with diabetes because the sugar lactose is normally present in their urine.

> Many people with diabetes still use urine testing as one tool for monitoring diabetes control.

High doses of vitamin C, aspirin, some antibiotics, methyldopa (a medication for high blood pressure), and levodopa (a medication for Parkinson's disease) can also cause false positive readings with Clinitest. Some of these medicines can also cause false negative readings with the glucose oxidase tests. That is why it is important to read the package insert accompanying the test.

Residues from bleach and some detergents can interfere with test results. Do not set strips on a recently cleaned counter, wring urine from baby's bleached diaper, or collect urine specimens in a container that has not been well-rinsed.

■ *Sensitivity.* The smaller amount of sugar a urine test can detect, the more sensitive it is. If urine testing is your main way of monitoring your diabetes, you will want to know as soon as possible that your blood sugar has crept over your renal threshold (the blood-sugar level at which your kidneys filter out sugar into the urine). Chemstrip uG are the most sensitive, with Tes-Tape running a close second.

■ *Range.* Urine-testing products vary greatly in the amount of sugar they can detect. Clinitest is an excellent test for measuring the amount of sugar in the urine. It measures urine at ranges of one-half percent to two percent with the five-drop method and up to five percent with the two-drop method. Chemstrip uG, Diastix, Kyotest, and Tes-Tape detect smaller amounts of glucose and vary in range. (See chart for specific ranges.) Clinistix only detects whether sugar is present; it does not measure the percent present.

■ *Ease and speed.* The easier a test is to use, the more likely it will be used. Chemstrips, Diastix, Kyotest, and Tes-Tape are easier and quicker to use than the more complex Clinitest. Care must be used when performing the Clinitest because the tablets are caustic and can cause burns. They also are poisonous and must be kept out of the reach of children.

If quick results are important to you, the 10-second Clinistix can't be beaten. Other tests range from 15 seconds to 2 minutes, so none of them take too long.

The tests for ketones are relatively quick and easy. The Acetest requires using a dropper to place a drop of urine on the tablet whereas the Chemstrip K and Ketostix are dipped into the urine.

■ *Readability.* All the urine-testing



Urine Testing

Product (Manufacturer)	Packaging	Sugg. Retail Price as of 8/88	Measures		Readings
			Glucose	Ketones	
Tablets					
Acetest (Ames)	100	$16.65	No	Yes	Small, moderate, large
Clinitest (Ames)	36 100 100 (foil wrapped) Kit (36 tablets, test tube, dropper)	$ 4.00 $ 8.85 $12.05 $10.40	Yes	No	2-drop method: 0, trace, ½%, 1%, 2%, 3%, 5%+ 5-drop method: 0, ¼%, ½%, ¾%, 1%, 2%+
Strips					
Chemstrip uG (Boehringer Mannheim)	100	N/A	Yes	No	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2%, 3%, 5%+
Chemstrip K (Boehringer Mannheim)	25 or 100	N/A	No	Yes	Ketones: Negative, small, moderate, large
Chemstrip uGK (Boehringer Mannheim)	50 or 100	N/A	Yes	Yes	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2%, 3%, 5%+ Ketones: Negative, small, moderate, large
Clinistix (Ames)	50	$ 5.55	Yes	No	Negative, light, medium, dark
Diastix (Ames)	50 100	$ 4.35 $ 8.25	Yes	No	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2%
Ketostix (Ames)	50 20 (foil wrapped)	$ 7.00 $ 5.25	No	Yes	Ketones: 0, trace, small, moderate, large
Keto-Diastix (Ames)	50 100	$ 7.90 $14.60	Yes	Yes	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2% Ketones: 0, trace, small, moderate, large
Kyotest UGK (Kyodex Diagnostics)	100	$ 8.70	Yes	Yes	0, under ¼%, ¼%, ½%, 1%+
Tes-Tape (Lilly)	Roll (approx. 100 tests)	$ 5.67	Yes	No	0, 1/10%, ¼%, ½%, 2%+

N/A: not available

products are read by comparing the test color to a standard color chart. Color blindness may interfere with reading some of the color charts. Also some of the colors may be difficult to distinguish or the color blocks may be small, making reading difficult. Using a magnifying glass and reading the result in good light may help. For those with severe visual impairment, consider using a blood-glucose meter with a large number display or audio readouts, or the new MatchMaker that assists in reading visually read Chemstrips.

Your diabetes educator, doctor, or pharmacist can give you additional help in selecting the urine-testing product that best suits your needs.

Donna Lind is a member of the ADA, Alaska Affiliate Patient and Public Education Committee and Chairperson of the Anchorage ADA Chapter Education Committee.


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- Focuses on color blocks
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- Extremely compact and portable

CHEMSTRIP MatchMaker marks the beginning of a revolution in visual self blood glucose testing. Its ideal combination of features makes it easy to use, easy to read, portable, convenient, and economical. CHEMSTRIP MatchMaker is another new development in diabetes care from Boehringer Mannheim Diagnostics...available now in Diabetes Health Care Centers and retail pharmacies.

Reference: 1. Data on file, Boehringer Mannheim Diagnostics.

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Pumps

By Sandy Weinrauch, M.S.W., and Donna Tomky, R.N., A.N.P., C.D.E.

Since they first became available in the late 1970s, insulin pumps have become a way of life for a small but growing number of people with insulin-dependent (type I) diabetes. Either pump therapy or multiple daily injections are the current means available to achieve tight blood-sugar control. Many pump users believe that pumps have given them a new degree of flexibility and control over their lives.

An insulin pump is not an artificial pancreas, however. It can't sense the level of glucose in the blood and automatically adjust insulin levels. Successful insulin pump users play an active role in their diabetes care; they must test their blood-sugar levels at least four times a day and activate the pump to give an extra dose of insulin (bolus) before meals. Pumps use only Regular (fast-acting) insulin.

Insulin pump therapy is not the cheapest way to treat diabetes. Because there is the initial investment in the pump and then the ongoing expense of pump supplies, you will want to check with your insurance carrier about coverage for durable medical equipment. Many insurance carriers require that you meet certain provisions before they will pay.

Because the purchase of an insulin pump requires your physician's prescription and statement of medical necessity, you must explore your options thoroughly with your doctor and health-care team. If you opt for pump therapy, you'll want to work closely with an experienced pump specialist team, consisting of a physician, dia-

Insulin

Pump Model (Manufacturer)	Price (as of 8/88)	Size (inches)	Wgt. (ounces)	Battery type/life/cost	Replacement Part Prices: Syringe(s) Reservoir(r)	Replacement Part Prices: Infusion Set
B-D 1000 (Becton Dickinson)	$2,700	3.06×2.20×0.77	4.4	2/1.5-volt batteries; (1 year); 2/$4.65	$1.25(r)	$1.95 (20″) $1.95 (40″) (Straight needle) $2.07 (20″) $2.07 (40″) (Bent needle)
B-D 2000 (Becton Dickinson)	$3,000	3.06×2.20×0.77	4.4	2/1.5-volt batteries; (1 year); 2/$4.65	same as above	same as above
Betratron IV (CPI/Lilly)	$3,595	2.3×3.1×0.75	3.8	disposable 3.9-volt (3-6 mo. life) $16 from manufacturer	$1.23(s)	$2.50 (Bent or straight needle) $1.73 (Teflon cannula)
MiniMed 504-S (MiniMed Technologies)	$3,195	3.40×2.0×0.8	3.7	3/1.5-volt watch batteries (1-3 mo. life) 3/$5.67	$1.33(s)	$2.33 (24″ & 42″) PVC $2.83 (24″ & 42″) polyfin $5.16 (42″) Sof-set (needle-free) (includes tape)
Medix (Medix Medical Electronics)	$ 930	4.31×2.62×0.87	5.30	standard 9-volt; (3-10 days); $9.25	$ .33(s)	$1.42 (42″)



betes nurse educator, and dietitian at minimum. The health-care team will be familiar with certain pump models and will help you select a pump.

How Pumps Work

Insulin pumps deliver insulin through a plastic tube (the infusion line) attached to a needle or cannula, which is inserted under the skin and taped in place. (A cannula is a tiny, flexible plastic tube.) The pump constantly provides a slow trickle of Regular insulin (the basal infusion) throughout the day and night. On command from the user, the pump also gives an extra squirt of insulin (the bolus) before eating, to level the blood-sugar increase that normally results from the food. This routine is meant to match as closely as possible the body's natural pattern of insulin release. A distinct advantage of pump therapy is the precise dosing. Most pumps can deliver as little as one-tenth of a unit of insulin per hour.

Because insulin needs can vary widely, basal rates and bolus dosages must be tailored to the individual pump user. Generally, the physician and his or her health-care team will determine the proper basal level or levels for your needs and give you guidelines for adjusting doses to account for food, exercise, and the results of self-monitoring of blood glucose. You can see why frequent self blood tests are crucial for successful pump use.

Key Features

■ *Syringe/reservoir.* At the heart of most pumps is a familiar companion —a syringe. The controls of the pump tell the pump how much of a push to

Pumps

#	Basals Range	Smallest Bolus	Alarms: Occlusion	Alarms: Runaway	Alarms: Near Empty	Warranty	Features
1	0.34-2U/hr.	0.5U	yes	yes	yes	1 yr.	cassette-style insulin reservoir
2	0.34-4U/hr.	0.5U	yes	yes	yes	1 yr.	same as above
4	0.1-2OU/hr.	0.1U/hr	yes	yes	yes	2 yr.	• pump is covered under warranty for water damage • last bolus dose amount and time recall • warranty extendable up to 5 yrs. • dose limit protection • simple user prompting programming • accumulated dose readout
4 plus temporary	0.0-7.2U/hr.	0.1U/hr	yes	yes	yes	2 yr.	• pump is covered under warranty for water damage (pump is watertight to 8 feet) • temporary basal rate decrease or increase • last bolus meal recall • window on syringe compartment gives view of remaining insulin • Bonus Pack with each new pump
1	12-42/24 hrs.	1U	yes	yes	yes	1 yr.	1 model available



give the syringe plunger. Some pumps carry the insulin in special storage containers (reservoirs) and use different pumping mechanisms. Once the syringe or reservoir is empty, you must replace it with a new one.

■ *Alarms.* All pumps now in use sound an alarm when the battery is running low. In addition, all pumps will sound an alarm if the infusion line is completely blocked (occlusion alarm) or if the pump has run out—or is on the verge of running out—of insulin.

Some of the earliest insulin pumps occasionally developed "runaway" malfunctions. The pump would accidentally deliver an unexpectedly large insulin dose. Runaways have now been all but eliminated. But some pumps still feature an alarm that sounds if a runaway should occur. Some pump manufacturers say that runaways are so unlikely that a runaway alarm is not necessary; those pumps are listed as "N/A" in the table.

■ *Disposables/replaceables.* Insulin pumps require some ongoing supplies. You will need to regularly replace the syringe or reservoir and infusion set (needle and tubing). How often you do this will depend, in part, on how long your doctor recommends you keep the needle in place (usually one to three days). It will also depend on how much insulin you use and the size of the pump's syringe or reservoir.

Your expense for batteries may vary widely from one pump to another depending on whether your pump uses locally available batteries, how long the batteries last, whether they are rechargeable, and your personal basal and bolus insulin requirements.

■ *Basal and bolus adjustments.* Ranges for the smallest and largest basal and bolus infusions vary from pump to pump. If you have very small or large basal requirements, you will require a pump capable of delivering the proper amount of insulin.

Some pumps can be programmed to change basal rates automatically at different times of the day. Common uses for this feature are to tailor insulin delivery to accommodate for the "dawn phenomenon" (an early morning rise in blood sugar) or for varying insulin needs. These features are a key medical consideration in choosing a pump.

■ *Other features.* Some pumps have one or more of the following features: temporary infusion stop, dose limit protection, and keyboard lock. When you are ready to exercise, the temporary infusion stop comes in handy. It allows you to turn off insulin delivery with the push of a button, rather than having to shut off the entire pump by disconnecting the batteries.

Dose limit protection allows you to key in an amount of insulin that you don't want the pump to exceed. For example, you may want to tell the pump not to exceed 30 units per day. Some pumps have a limit on the maximum amount you can give in a bolus dose.

The keyboard lock simply freezes the pump's keyboard so that you can't accidentally make a change in dosage by bumping into something, for instance.

New Developments

Pumps today are much smaller, lighter, and more sophisticated and precise in delivery of insulin. There are also fewer pumps on the market. New developments in pumps include:

Betatron IV from CPI, which is "water resistant." This pump can be worn in the shower and is warranted against any kind of water damage. It cannot, however, be worn during swimming.

MiniMed Technologies states that MiniMed 504-S is "watertight." They warrant it against accidental dunking. (According to the manufacturer, it can withstand ten minutes in eight feet of water.) The 504-S can be worn in the shower only if protected from corrosives, such as soap, with the manufacturer's shower bag.

Service

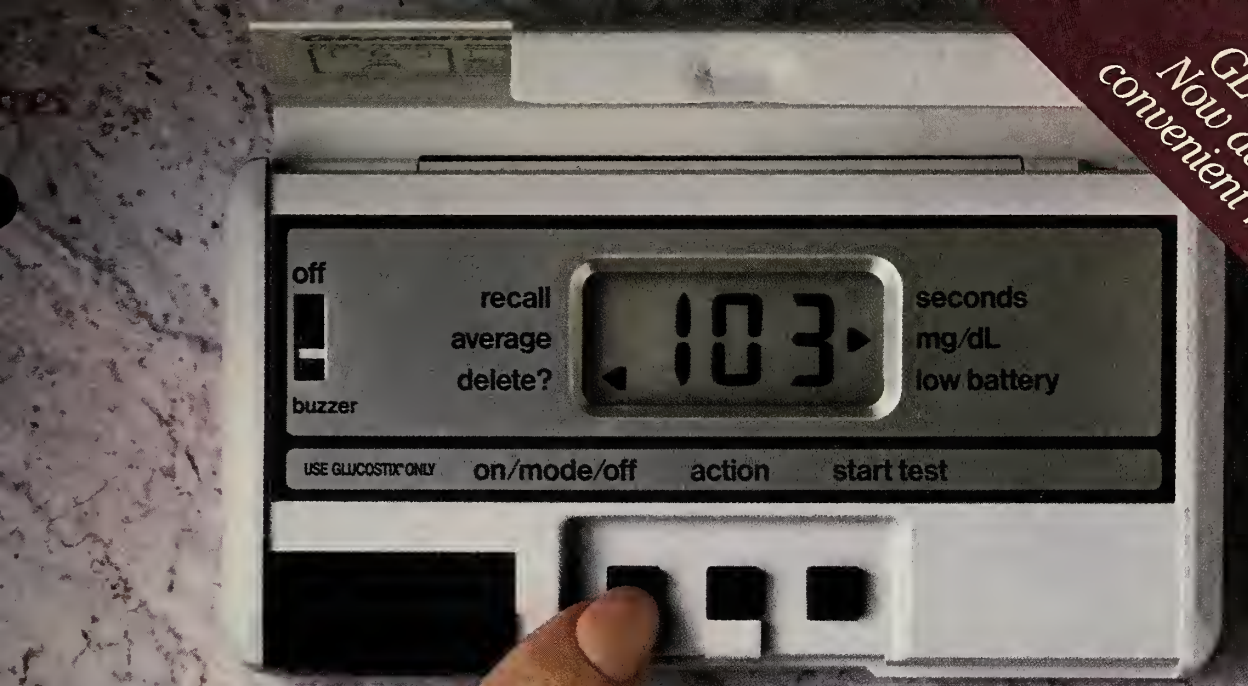
Just as important as the pump itself is the service and support you get from its manufacturer. All the pump manufacturers promise fast repairs if something goes wrong with one of their pumps. You will want to ask the manufacturer whether "loaner" pumps are provided if you have to send yours back for repair.

CPI and MiniMed Technologies take trade-ins on old pumps toward the purchase of newer models. The details of the trade-in agreements vary from manufacturer to manufacturer, so check ahead of time to learn what your options are. For example, CPI offers a replacement guarantee. For $400, you can purchase a five-year replacement option. You can then buy any new technology at an 80 percent discount. They also offer an extended (five-year rather than two-year) warranty for $350. MiniMed offers a one-year extension to their two-year warranty for $160.

Insulin pump therapy is not for everyone. But for those motivated for tight control, it's an option worth exploring.

Sandy Weinrauch is Administrative Director of the Diabetes Health Center in Salt Lake City, Utah. Donna Tomky is Past Chairperson of the ADA, Utah Affiliate Diabetes Educators Committee and Education and Research Coordinator and Adult Nurse Practitioner at the Diabetes Health Center in Salt Lake City.

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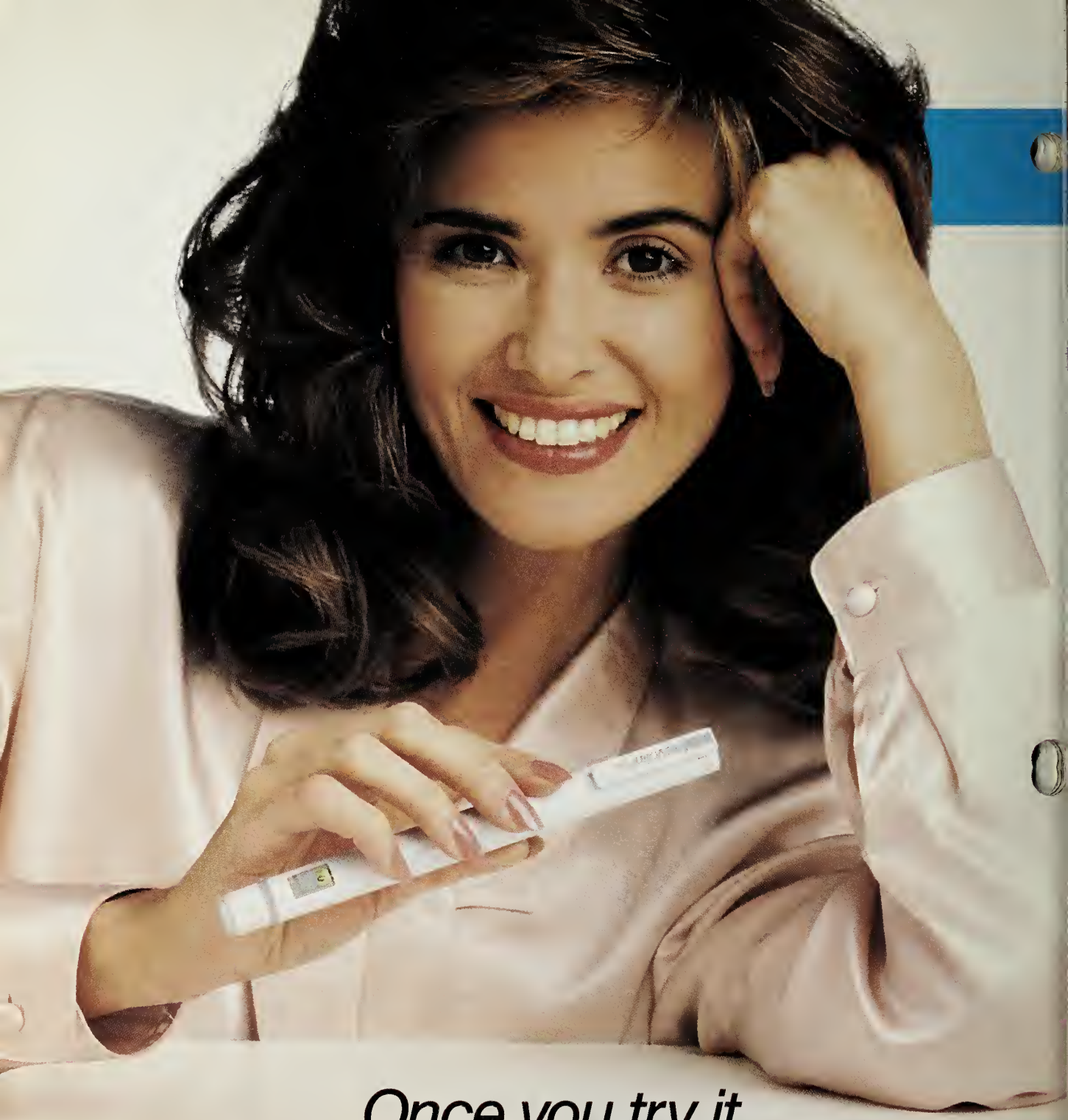
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Products For Treating Reactions

By Barbara Narins, R.N., C.D.E.

An insulin reaction can occur when insulin is injected, but not "covered" with the right amount of food at the right time.

To treat insulin reactions, medical professionals have always recommended that people who are taking insulin should keep some form of "fast sugar food" on hand at all times. The fast sugar food will raise blood sugar quickly, helping to alleviate an insulin reaction.

For most people, this fast sugar has usually meant fruit juice, honey, or non-diet soda at home, in addition to hard candies or sugar cubes in pockets, desks, purses, and automobiles.

Manufacturers of diabetes-related products, however, produce commercial fast sugar products that treat insulin reactions.

Is there any advantage to buying these products instead of relying on the old standbys?

Before you decide, take a look at these three basic considerations: efficiency of action, cost, and form.

Most candy is made from a variety of sugars, with sucrose (table sugar) the most common ingredient. Sucrose is a dissacharide, which means that for sucrose to raise the blood sugar, it must be first be broken down into glucose, which is a monosaccharide or simple sugar.

Actually, the body accomplishes this conversion within a few minutes. Manufacturers argue, however, that their products act even quicker than candy because they are already monosaccharides.

Cost is another factor. Probably, the commercial products will cost more than candy, sugar cubes, honey, fruit juice, or non-diet sodas.

Exact cost per dose will depend on how much the product sells for in your store and how many tablets or how much of the gel you need to relieve the symptoms of the insulin reaction. The costs on the chart are approximate.

The word "form" is a simple word that explains a more complicated idea. The idea is that the commercial product is in the form of medicine. The sugars, juices, or other foods you find in the kitchen are likely to be in a form that seems like a food treat. Although the commercial products aren't bad tasting, they don't seem like candy. That makes it easier to think of them as medicine, something to take only for an insulin reaction.

The form they come in also makes it simpler to know how much to take. The packages are clearly marked as to what the usual required dose is. On the other hand, it can be confusing to count out the right number of hard candies or jelly beans when you may not be thinking clearly.

It seems, then, that commercial products have a place in the treatment of mild insulin reactions. Of course, none of the items mentioned, both commercial or noncommerci should ever be used with someone w has lost consciousness. An unconscious person should be given a glucagon injection or intravenous glucose.

Barbara Narins is Clinical Transplant Coordinator in the Department of Cardio-Thoracic Surgery of Temple University in Philadelphia.

Over-The-Counter Products For Treating Reactions

Product Name/Manufacturer	Carbohydrate/Dose	Calories	Approx. Price (as of 8/88)	Form
B-D Glucose Tablets (Becton Dickinson)	5g/tab	64	$1.39/6 tab.	Citrus-flavored tablets
Glutose (Paddock Laboratories)	10g/dose (dose marked on bottle)	40	$3.00/2-oz bottle (3 doses/bottle)	Lemon-flavored gel
Glutose–Unit Dose (Paddock Laboratories)	10g/dose (1 dose per tube)	40	$2.70/box (3 single-dose tubes per box)	Lemon-flavored gel
Insta-Glucose (ICN Pharmaceuticals, Inc.)	24g/unit-dose tube	96	$3.25	Cherry-flavored gel; 5-yr. shelf life
Monojel Insulin Reaction Gel (Sherwood Medical)	10g/pkt.	46	$3.99/4 pkts.	Lime-flavored gel



Aids For The Visually Impaired

By R. Keith Campbell, R.Ph., F.A.P.P., C.D.E.

Vision problems do not have to stand in the way of good diabetes care. There are a variety of products available to assist visually impaired people with the tasks of diabetes management.

Injection Aids

Syringe magnifiers magnify the calibrations on an insulin syringe to twice their normal size. Dose gauges assist in delivering an accurate dose of insulin. Some click at each two-unit increment of insulin. Others help deliver a preset dose. Jordan's Count-a-dose holds two bottles of insulin for those who need to take mixed doses. Needle guides and vial stabilizers help the process of getting the needle into the insulin vial.

Blood-Glucose Monitoring

Vision impairment does not necessarily rule out self-monitoring of blood glucose. Technique, however, is important in obtaining accurate blood-glucose test results. Whether using a visually read test strip or a meter specially adapted for the visually impaired, it is important to get a sufficient amount of blood appropriately placed on the test strip.

For those with some vision, the Chemstrip MatchMaker visual reader may enhance the reading of visually read test strips. The device gives a digital readout of what the visual test states. You must be able to match the test strip color to a color block, however.

In addition, there are several blood-glucose meters on the market adapted for visually impaired users. BetaScan Audio by Orange Medical Instru-

continued on page 39

Aids For The Visually Impaired

Product	Description/Use	Syringe Used	Source (see resource list)	Sugg. Retail Price (as of 8/88)
Syringe Magnifiers				
Insul-eze (Palco)	Device holds syringe and insulin bottle while dosage is drawn. Magnifies syringe calibration for full length of syringe. Design allows device to sit firmly on any flat surface (in vertical or horizontal position). Works with all types of insulin bottles.	Accommodates most syringes: B-D, Monoject, Terumo, Pharma-Plast. One model for 50-unit syringe; another model for 100-unit syringe	Local pharmacies; home health centers	$9.00-$12.00
Magni-Guide	Syringe is slipped into curved channel of Magni-Guide. At opposite end, insulin vial is snapped into collar. Guide magnifies entire scale 2 times.	Any 1-cc or ½-cc syringe	B-D Consumer Products; AFB; ILA; local pharmacies	$4.60
Syringe Magnifier	Clips onto syringe; magnifies 60 units of scale 2 times.	One size fits any disposable syringe; other size fits glass syringes with barrel diameter up to 1 cm	Cemco	$4.00 $30.00/doz. No single orders by phone
Dose Gauges				
Andros IDM (insulin dosage meter)	Lightweight plastic strip cut to fit between thumb-rest of plunger and flange of syringe. (#8410)	Use only with B-D U-100 syringes	Andros Analyzers, Inc.	$2.75 ea. (1–9) $2.50 ea. (10–99)
Click-Count Syringe	Glass syringe in metal casing. Plunger "clicks" at each 2-unit increase.		AFB	$24.00
Count-a-dose	Empty syringe is secured in easy-to-locate platform; slide moves syringe plunger to control insulin intake.	Use only with B-D U-100 syringes	Jordan Enterprises	$49.95 (includes print instructions, pictures,

chart continued on page 38



Product	Description/Use	Syringe Used	Source (see resource list)	Sugg. Retail Price (as of 8/88)
	Click wheel moved by fingertip, guides slide backward and forward to ensure accurate dosage (in 2-unit increments). "Click" heard and felt as wheel is rotated; raised plus(+) and minus(−) images on either end of wheel indicate direction slide is moving in. Gauge holds 2 bottles of insulin for mixed doses.			and audio cassette tape)
Dos-Aid	Nine-inch-long plastic case holds vial, syringe, plungers as a unit. Backstop is set at desired distance so plunger can be pulled out only to desired dose.		AFB	$19.50
Insulgage	Permanent, precalibrated device; purchased according to dose (2 to 85 units). Dose marked in Inkprint, raised numbers, Braille and raised numbers, or Braille.	For B-D or Monoject U-100, 1-cc syringes	Meditec, Inc.	$6.95–11.45 ea. (depending on how dose is marked and number ordered)
Needle Guides and Vial Stabilizers				
Dos-Aid (see above)				
Holdease	Needle guide and syringe/vial holder. Unit holds syringe and insulin together in easy-to-handle unit while user fills syringe.		Meditec, Inc.	$12.75 ea.
Inject-Aid	Six-inch-long device provides support between vial and syringe; preset dose guide makes automatic setting at correct dosage on syringe at plunger stop.	U-100, U-80, U-40	George Wright Industries	$5.95
Injection Safety Guard	One-inch white disk fits over head of most insulin vials. Improves aim, but does not physically guide needle.		Falgro International Corp.	$1.00
Insul-eze (see above)				
Insulin Aid	Three-inch by 2-inch magnetized case holds vial, freeing hands.		Seabee Corp.	$8.98
Insulin Needle Guide	Guide fits over vial cap, funnel-shaped opening guides needle into rubber seal of vial.		AFB	$3.25
Magni-Guide (see above)				
Vial Center Aid	Designed for use with Inject-Aid (see above); funnel-shaped guide centers needle on vial top; easy snap-on and -off handling.		George Wright Industries	$3.95

ments ($480) gives an audible readout of test results and also has a red LED display of results. It comes with cassette instruction tape. Diascan-SVM from Home Diagnostics ($635.50) has a voice module that annouces key words and phrases required for testing and also announces final test results. It is a special-order item and takes six to eight weeks for delivery.

Glucocheck SC Audio from EquiMed Medical Products ($399) signals test procedures and test results with electronic tones. It has an assistive device for placing blood on test strips and comes with cassette instructions as well as Braille and large type/picture instructions. (See chart on page 4 for more on blood-glucose meters.)

The Digi-Voice Module is available from Science Products (see Resource List on page 39). This module plugs into meters with an exterior port. According to the manufacturer, it can be used with the LifeScan One Touch, the GlucoScan 3000, the Glucometer M, and the Accu-Chek II. The module consists of a voice chip that reads whatever is on the meter's digital display and makes it audible. For example, if the meter display reads "insert test strip," the Digi-Voice will say, "insert test strip." The module is available for $420 and comes with a 90-day full warranty and a 1-year limited warranty.

For more information on a variety of products for the visually impaired, write for *1988-1989 Products for People with Vision Problems* from Consumer Products, American Foundation for the Blind, 15 West 16th Street, New York, NY 10011 or call (201) 862-8838.

R. Keith Campbell is Professor of Pharmacy Practice at Washington State University in Pullman, Washington.



Suppliers

All of the information in this guide is current as of August 1988. Manufacturers and suppliers can be contacted at the addresses below.

RESOURCES

Note: the phone numbers listed are for customer service questions.

American Foundation for the Blind (AFB)
15 West 16th St.
New York, NY 10011
212-620-2000

Ames (see Miles, Inc.)

Andros Analyzers, Inc.
2332 Fourth St.
Berkeley, CA 94710
415-849-5700

Baxter Physician Diagnostics Division
Baxter Healthcare Corporation
1425 Lake Cook Rd.
P.O. Box 852
Deerfield, IL 60015
800-323-9098 (except Ill.)
312-948-4590 (Ill. only)

Becton Dickinson Consumer Products
One Becton Drive
Franklin Lakes, NJ 07417
800-526-4650

Boehringer Mannheim Diagnostics, Inc.
9115 Hague Rd.
P.O. Box 50100
Indianapolis, IN 46250
800-428-5074

Cemco
P.O. Box 21
Scandia, MN 55073
612-464-3181

CPI/Lilly
4100 N. Hamline Ave.
St. Paul, MN 55112
800-328-9588

Derata Corp.
6701 Parkway Circle
Suite 100
Minneapolis, MN 55430
800-328-3074 (except Minn.)
612-566-1202 (Minn. only)

Diabetes Supplies, Inc.
8181 Stadium Dr.
Houston, TX 77054
800-622-5587

Diatron Biomedical
P.O. Box 252
Sudbury, MA 01776

Diva Medical Systems
Riverplace, Suite 14
10 Second St., N.E.
Minneapolis, MN 55413
612-623-9500

Eli Lilly and Company
Consumer Relations
Lilly Corp. Center
Indianapolis, IN 46285
317-276-2000

EquiMed Medical Products
2800 Rock Creek Parkway
Suite 542
North Kansas City, MO 64117
816-842-1555

Falgro International Corp.
300 71st St., Suite 435
Miami Beach, FL 33141
305-861-8227

Gainor Medical USA, Inc.
P.O. Box 92077
Long Beach, CA 90809
800-222-0582 (except Calif.)
800-423-8772 (Calif. only)

George Wright Industries
82 West Lake Shore Dr.
Lincoln, NE 68528
402-477-1382



RESOURCES (cont.)

Home Diagnostics, Inc.
6 Industrial Way West
Eatontown, NJ 07724
800-342-7226 (except N.J.)
201-542-7788 (N.J. only)

ICN Pharmaceuticals, Inc.
3300 Hyland Ave.
Costa Mesa, CA 92626
714-545-0100
(corporate headquarters)

Independent Living Aids, Inc.
27 East Mall
Plainview, NY 11803
516-752-8080

Jordan Enterprises
12555 Garden Grove Blvd.
Suite 507
Garden Grove, CA 92643
800-541-1193 (except Calif.)
714-530-5123 (Calif. only)

LifeScan, Inc.
2443 Wyandotte St.
Mountain View, CA 94043
800-227-8862

Markwell Medical
P.O. Box 5173
Racine, WI 53405
414-632-3841

Meditec, Inc.
9485 East Orchard Dr.
Englewood, CO 80110
303-771-4863

Medix
Medical Electronics USA, Inc.
1010 Park St.
Peekskill, NY 10566
914-737-1646

Miles, Inc.
Diagnostics Division
Manufacturer of Ames Products
P.O. Box 70
Elkhart, IN 46515
800-348-8100

MiniMed Technologies, Inc.
12744 San Fernando Rd.
Sylmar, CA 91342
800-423-5611 (except Calif.)
800-777-2237 or 800-626-7696
(Calif. only)

Nordisk-USA
3202 Monroe St., Suite 100
Rockville, MD 20852
800-822-6487 (except Md.)
301-770-4400 (Md. only)

Orange Medical Instruments
3183 Airway Ave., Suite F
Costa Mesa, CA 92626
800-527-1151 (except Calif.)
714-641-5836 (Calif. only)

Paddock Laboratories
3101 Louisiana Ave., North
P.O. Box 27286
Minneapolis, MN 55427
800-328-5113 (except Minn.)
612-546-4676 (Minn. only)

Palco Laboratories
1595 Soquel Dr.
Santa Cruz, CA 95065
800-346-4488 (except Calif.)
408-476-3151 (Calif. only)

Pharma-Plast USA
Enterprise Center, Suite 412
2437 U.S. 19 North
Clearwater, FL 34623
800-556-5667 (except Fla.)
813-791-8303 (Fla. only)

Science Products
Box A
Southeastern, PA 19399
800-822-7400 (except Pa.)
215-296-2111 (Pa. only)

Seabee Corp.
P.O.Box 457
Hampton, IA 50441
515-456-4871

Sherwood Medical
1831 Olive St.
St. Louis, MO 63103
314-241-5700

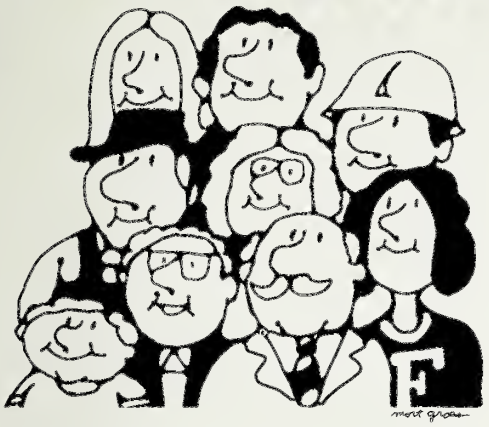
Squibb-Novo, Inc.
211 Carnegie Center
Princeton, NJ 08540
800-727-6500

Terumo Corp.
Consumer Products Div.
P.O. Box 589
Elkton, MD 21921
800-262-6782

Ulster Scientific
P.O. Box 902
Highland, NY 12528
800-431-8233 (except N.Y.)
800-522-2257 (N.Y. only)

Vitajet Precision Instruments, Inc.
Mada Equipment Co., Inc.
60 Commerce Rd.
Carlstadt, NJ 07072
800-VITAJET
(800-848-2538)

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BLOOD GLUCOSE TESTING FOR THE VISUALLY IMPAIRED

by Ruth B. Carr, R.N.

Diabetes is the number one cause of blindness in adults. An estimated 750,000 diabetic individuals have impaired vision. Eye complications include retinopathy, cataracts, glaucoma, and optic neuropathy, all of which can cause varying degrees of vision impairment or total blindness. Also, when diabetes is not well controlled, there can be sudden changes in the refraction of the lens, resulting in blurred vision which can fluctuate frequently. The individual experiencing vision loss may be frustrated by the difficulty or inability to monitor his own blood glucose level. Until a few years ago, it was impossible for visually impaired people with diabetes to do their own blood glucose monitoring. However, with the advent of glucose meters with electronic voices, visual impairment is no longer a major barrier to self-monitoring.

At the present time, there are only a few blood glucose meters designed specifically for the visually impaired individual. The BetaScan Audio Model from Orange Medical Instruments has an electronic voice built in (for details, see table on pages 12 and 13). In addition, both the Glucometer II (Ames) and the Accu-Chek bG (Boehringer Mannheim Diagnostics) can be adapted for the visually impaired by Science Products* in Berwyn, Pennsylvania for about $300. The "digi voice" is mounted on the bottom of the glucose analyzer and is connected to the visual display so that the number displayed is also spoken. In addition, the "digi voice" issues tones from time to time during the procedure to indicate the beginning and end of time periods and other bits of information. Although user instructions are printed here, visually impaired people should practice using the instruments with sighted help to develop the correct technique.

Since the procedure is timed, the user will need to be prepared for each step. The finger-stick procedure, for instance, can be done before turning the meter on. The reagent strip that receives the drop of blood can be positioned on a tissue. It then will be in proper position for blotting.

Obtaining blood

There are four difficulties the visually impaired individual may have in obtaining and processing a drop of blood. They are (1) determining the amount of blood at the puncture site, (2) finding the pad on the testing strip, (3) making sure that enough blood has been applied to the strip, and (4) adequately wiping or blotting the blood from the strip. A drop of blood can be obtained for the test either manually or with an automatic device.

**Science Products, 1043 Lancaster Avenue, Berwyn, PA 19312. Tel: (215) 296-2111.*

To overcome these difficulties the following procedures should be employed:

1. Wash hands with soap and warm water. Wiping with alcohol is not necessary but if alcohol is used, allow it to dry, as the alcohol may interfere with the reagent strip, producing a falsely high reading.
2. Lower arm to side approximately 30 seconds to allow blood to flow to finger tips.
3. Squeeze the tip of the finger to be used, with the thumb of the same hand, to concentrate the blood at the puncture site.
4. Place the finger tip against a firm surface and quickly prick it. (By stabilizing the finger, you will need less pressure to puncture the skin. The sides of the finger between the tip and first joint should be used rather than the pad of the finger, where nerves are concentrated.)
5. Turn your hand over and lightly squeeze the finger three times.
6. To detect wetness, touch the puncture site with another finger.
7. Wipe the blood off both fingers and squeeze three times to obtain a new drop of blood.
8. To apply blood to the strip, use one of the following techniques. (A) Place two fingers on either side of the reagent pad. Then place the finger with the drop of blood between the two fingers, which will act as a guide. (B) Place a finger below the reagent strip as a guide and put the finger with the blood drop above the first finger. (C) Use the strip guide made by Orange Medical Instruments to help in proper placement of blood on the test strip pad.

Meter procedures

BETASCAN AUDIO MODEL

1. Select a fresh strip. Lift flap of meter, place test strip in position with pad facing downward, and close flap.
2. Prick finger and obtain satisfactory blood sample.
3. Switch the meter on by pressing

button marked "O" to start calibration cycle. Display will show "---." Voice will say "Busy."
4. As soon as buzzer sounds (approximately 9 seconds), slide strip out of meter and cover reagent pad with blood. Press the test button on meter to start countdown. Meter will buzz when countdown starts.
5. The reagent pad must be covered with blood for 60 seconds. This period of time will be counted down to 0 on the display. Voice will say actual time remaining (60 seconds to zero). When the countdown is completed, the buzzer will sound and the strip should be wiped clean.
6. After an additional 60 seconds, at the buzz, reload the strip in meter by opening and closing the flap. During the 60-second period, the voice will say "timing."
7. Press the test button once for result.
8. The display will automatically switch to the result of the test.
9. In addition to the displayed result of the test, the voice will say the actual result.

The electronic voice indicates test results, high reading (above 400 mg/dl), low battery, and timing period. The electronic voice is activated by pressing the speaker button.

ACCU-CHEK bG

1. Open the meter's door and insert the calibration film strip from a vial of Chemstrip bG reagent strips. This film is coded to the particular vial of Chemstrip and must stay in the meter until the vial is finished.
2. Hold the calibration strip by the square end between the thumb and forefinger with the longer edge facing left. The code markings will be on the right side of strip. Locate the calibration strip slot in the upper right hand corner of the reagent strip door. Secure the end of the strip by pushing it over the raised notch in the reagent strip door.
3. Turn the meter on. Puncture finger and put a drop of blood on the Chemstrip. Then immediately press the timer button.
4. At 60 seconds a beep will be heard. Use a dry, clean cotton ball to quickly wipe the blood off the reagent strip. Wipe twice.
5. Then insert the strip under the strip guide. The timer will continue to count out loud from 61 to 120 seconds and beep again.
6. At the beep, close the meter's door. The blood glucose reading will appear on the digital display and will be spoken by "digi voice."

A repeating low tone means either the calibrating strip is not in the slot or a test strip is improperly in the test strip holder. A high tone means everything is OK! You must get two high signals before proceeding. "Point" means the test strip does not match the lot number of the calibration strip or the test strip is old or used before. A high-low tone means the test strip you are reading is below the range of the analyzer. A low-high tone means the blood strip is above the range of the analyzer.

GLUCOMETER II

1. Turn meter on by pressing on/off button.
2. Check that the program number on the meter matches the program number on the bottle. A sighted person will need to check the bottle for the program number in order to set the meter. Once the program is set, it will remain until it needs to be reset. The program button can always be pressed to ensure the correct number. The "digi voice" will announce the program number.
3. Remove a Glucostix strip from bottle and position it on the table, pad side up. Close the bottle cap tightly.
4. Puncture finger with a blood-sampling device.
5. Press start button. The machine will start counting from 60 to 20.
6. At the first beep, apply the blood to the strip on the pad.
7. At 22 and 21 seconds, there will be warning beeps. Prepare to blot the strip in the tissue.
8. The meter will give a longer beep and the "digi voice" will direct you to blot the strip for 1-2 seconds.
9. Immediately after blotting, open the test door, insert the strip, and close the door.
10. The meter will display the blood glucose reading on the digital display and will audibly announce the reading.

A high-low tone means the test strip is below the range of the analyzer. A low-high tone means the blood strip is above the range of the analyzer.

Organization of equipment is extremely important because it will help you keep track of where everything is. All equipment—the meter, strips, cotton or tissue, and the blood-sampling equipment—should be kept together. A tray is useful as the sides are usually low enough to work with. This not only enables the visually impaired to organize the equipment as a unit but will also assist in carrying the procedure out in a smooth, timely fashion.

The time needed to test blood decreases with experience. In the beginning the pricking of one's own finger may be a drawback, but as one becomes accustomed to it, it becomes as natural as taking insulin injections. If one has any useable sight, written record-keeping may be possible. Otherwise, the tape recorder or the stylus and braille slate will be helpful in record keeping.

The visually impaired person with diabetes at times feels frustrated in not being completely independent. However, by using devices such as these, you can gain mastery over your diabetes. □

Ruth B. Carr, R.N., is Head Nurse at the Eastern Blind Rehabilitation Center of the West Haven Veterans Administration Medical Center in West Haven, Connecticut. *This article can be read aloud by sighted friends or relatives. This issue is also available for free on cassette from a regional branch of the National Library Service for Blind and Physically Handicapped. To find the branch nearest you, write to the Library at 1291 Taylor Street, Washington, DC 20542 or call (202) 287-5100.*

MEDICATION AIDS FOR THE VISUALLY IMPAIRED

by Ruth B. Carr, R.N.

Imagine reaching into your medicine cabinet in the dark looking for a specific prescription without turning on the lights. Sounds pretty difficult, doesn't it? This is basically what visually impaired people do each time they reach for their bottles of medicine.

This article describes ways for people with different levels of visual impairment to organize and identify their medications. Many types of visual aids are being sold today. But rather than spend money for all kinds of fancy equipment you should first make an effort to use what is available in your home. Sometimes just changing the lighting will solve the problem. Try taking advantage of color contrast to help make pills more visible. Or use a magnifier to enlarge the print on bottles to read labels more easily.

Getting started

The first step is to organize your medicines. Separate your pills so that you can keep them in the most appropriate places—for example, breakfast pills in the kitchen and bedtime pills in the bedroom. Store the medicines in a box that is kept in a cabinet or drawer.

Have a system for remembering when to take medicines and stick to that system. For example, always take mealtime pills before you start to eat and always take bedtime pills before getting into bed. Some people find that compartmented pill containers help them to both organize their medicines and keep track of what they've taken. These pocket-sized containers are available in pharmacies. They hold either a week's or a month's supply of medicine and have lids marked with days of the week or month.

When you first take your prescriptions to the pharmacist, ask him to provide bottle caps that do not require you to read instructions to remove them. If you also have neuropathy, try different styles of caps to find the one that you are most comfortable with.

It is a good idea when removing pills from a bottle to do so over a tray of contrasting color. This will help you find the pill if you drop it.

Ways to identify bottles

Ask your pharmacist for bottles of different sizes for each of your prescriptions. You can then identify the bottles by their size and shape. Different kinds of bottle caps can also

be used to distinguish medicines.

Ways to label bottles

Some methods of labeling bottles may be more helpful than others, depending on how well you can see. For a start, using a felt-tip pen, write the name of the medicine in large print on a tag and tie it to the bottle. If you still have trouble reading the label, you may want to put rubber bands or string, or tape paper clips on the bottles to identify them.

Another method is to cut letters out of sandpaper and glue them onto bottles. Or you can use several thicknesses of adhesive tape to cut out the letters. For instance, "A" might stand for aspirin and "P" for pyridoxine. Tape can also be used to mark each bottle with the number of pills you need to take and how often to take them. For example, dots would indicate the number of pills and stripes the number of times each day. Under this system, if your prescription label reads "Pyridoxine, two pills three times a day," the bottle would be marked with a P, two small dots, and three stripes.

There is a product available for labeling called High Marks (see the chart below). This gluelike substance can be formed into three-dimensional symbols that can be read or identified by touch. Raised dots can also be made with nail polish or household glue. Braille tape is useful for those who read braille. The chart below gives a partial list of other useful products to help you pour, measure, label your bottles, organize your pills, and even remember to take them. □

Ruth B. Carr, R.N., is Head Nurse at the Eastern Blind Rehabilitation Center at the West Haven Veterans Administration Medical Center in West Haven, Connecticut.

WHAT THEY DO AND WHERE YOU CAN GET THEM

Product	Description/Use	Source	Cost
Measuring spoons	Nesting spoons on a loop; ¼ tsp to 1 tbsp for measuring powders.	Hardware stores or ILA[1]	$ .99
High Marks	A glue-like substance from a tube that can be used on paper, cloth, wood or metal. Can be formed into raised, three-dimensional tactile symbols.	AFB[2] or ILA	3.75 (AFB) 3.95 (ILA)
Marktime 60 second timer	Spring-wound by rotary knob, raised dot at 5-second point, 15-, 30-, 45-second points.	AFB	14.00
Monodose	Teaspoon that measures 1-2 tsp of liquid.	AFB	.90
Pill Organizer	Seven individual pill compartments for appropriate pill organizing.	Local drug stores or ILA	.99
Weekly Pill Dispenser	28 individual openings to hold 4 separate daily dosages for each day of the week.	ILA	3.95
3× Magnifier with light	Hand-held 3½" diameter lens	ILA	8.95
10× Illuminated magnifier	Hand-held 10 power super strong magnification	ILA	9.95

[1]Independent Living Aids (ILA), 1500 New Horizons Blvd., Amityville, NY 11701 [Call toll-free (800) 262-7827 for free catalogue.]
[2]American Foundation for the Blind (AFB), 15 West 16th Street, New York, NY 10011 (Free catalogue available in Braille.)

Aiding the Person Who is Visually Impaired from Diabetes

Margaret E. Cleary, RN, MS
Rehabilitation Field Representative
The Carroll Center for the Blind
Newton, Massachusetts

Some degree of diabetic retinopathy exists with alarming frequency in persons who have diabetes mellitus. The diabetes educator is often in a position to direct, teach, and counsel the patient who is involved in diagnosis, treatment, and rehabilitation.

The educator's role may vary — offering an informed listening ear; providing simple explanations about the eye, the disease processes, and treatment; giving clear instructions about how to perform some activity independently; and directing the person to the appropriate resources for specialized assistance.

Being an expert in retinopathy or rehabilitation of persons who are visually impaired is not necessary. Being interested, innovative, aware, and curious can help the diabetes educator obtain the knowledge, skills, and direction that need to be imparted to the patient.

This article is offered to provide information about the effects of diabetic retinopathy on vision, the difficulties experienced by persons with both diabetes and visual impairment, and helpful hints as a means of resolving some dilemmas. The text will indicate references where further information can be obtained. A numbered resource list will be found at the end.

When I first met Dr. Sam Small, an oral surgeon, he shared with me an all too familiar story: He had had Type I diabetes for 22 years. Approximately five years ago, he noticed frequent blurring of his vision and more difficulty seeing at night. His ophthalmologist told him he had diabetic retinopathy starting with some abnormal blood vessel growth in his eyes. He was started on a course of laser treatments. The ensuing years felt like a roller coaster ride to Dr. Small. The vascularization turned to hemorrhage. The hemorrhage cleared for awhile in one eye. Then the retina detached in the other eye and a cataract developed. Various surgical procedures were attempted, including vitrectomy surgery. He felt bewildered by the new conditions and terminology, often too depressed to ask what they meant.

During the early stages of the retinopathy, Dr. Small struggled to keep his diabetes under control. He was able to use some magnifying lenses and electronic magnifying equipment to perform his work. For some time he continued playing in a softball league and coaching his sons' Little League team. Eventually the retinopathy became proliferative and took over, leaving only light perception in his left eye with no light perception in the other.

This dreaded complication of diabetes has no respect for age, race, religion, sex, education, or occupation. Dr. Small's experience with retinopathy is, unfortunately, not unusual. Providing the necessary support for coping with it is a great challenge to the diabetes educator. Meeting the challenge can be helped by knowing the structure of the eye, potential eye complications of diabetes, treatments for retinopathy and other eye difficulties, definitions of visual impairment, the emotional impact of severe vision loss, the effects of blindness, techniques for offering aid, suggestions for problem solving, and resources to contact for assistance.

Structure of the Eye

To review basic anatomy, the eye consists of a globular structure in a socket of the skull and functions like a television. The eyelid is a movable flap of muscle and skin that

can be closed over the eye, protecting it from outside elements. A mucous membrane called the conjuctiva lines the inner surface of the eyelids and continues over the front of the eyeball.

The eye is often described as a hollow pingpong ball filled with a clear fluid that maintains the shape of the eye. A tough, fibrous white coat called the sclera gives strength to the wall of the eye. A vascular layer, the choroid, covers a lining of nervous membrance identified as the retina. The retina responds to visual stimuli. It is connected to the optic nerve by more than a million nerve fibers. Bathing the retina is the clear fluid known as the vitreous.

In the back of the eye can be seen a pale, yellow, flat object which resembles a pancake. This is the optic disc with blood vessels designed like the spokes of a wheel. These retinal vessels nourish the eye. Also on the back wall of the eye is the bright red macula which controls central vision.

A clear, outer transparent surface, the cornea covers each eye and helps direct incoming light rays through the pupil, the circular opening surrounded by the colored ring of muscle called the iris.

Like the aperature of a camera, the iris controls the amount of light passing through the pupil to the lens of the eye. The lens acts to focus the light on the back of the eye to the layer of nerve tissues. The light sensitive retina reacts to pass on the signals to the brain. The brain interprets and vision appears. Any interference in the light pathway restricts the production of an image.

Complications of the Eye That May Affect Persons With Diabetes

Because diabetes compromises blood circulation, there are many ways in which the eyes can be affected. Common eye conditions such as cataracts, glaucoma, and detached retina ordinarily are not associated with diabetes; but they do, indeed, become dreaded complications of it.

Early in the course of diabetes, fluid accumulation in the lens may cause inconsistent, frustrating vision changes. Fluctuations occur because high blood sugars send fluid seeping into the lens, causing the lens to swell. Low blood sugars decrease the power of the lens. In addition, the lens may develop a clouding called a cataract, which alters the passage of light rays to the back of the eye. Cataracts tend to occur at a younger age and progress much faster than cataracts in people without diabetes.

Vitreous pressure may increase causing glaucoma and optic nerve damage. A gradual loss of peripheral or side vision may be the first sign. Retinal detachments occur in areas of proliferation or stress.

In the macula, an abnormal accumulation of fluid in the retina may result in edema and blurred central vision. Paresis of the muscles controlling the eyeball or eyelid due to visceral nerve damage may appear.

Eyelids develop xanthmata which are yellowish benign neoplasms. Conjunctiva can be obscured by having an increased number of capillaries as evidenced by spider web redness.

Pigmentary disturbances and glycogen infiltration of the iris may result in rubeosis irides. Pupils may have abnormal reactions, oftentimes dilating poorly.

The local retinal blood vessels may grow abnormally or rupture causing retinitis or forms of diabetic retinopathy. This condition is common to a sizable number of people with diabetes for a number of years. There are microvascular changes in the retinal capillaries, arterioles, venules, and veins. There may be bulges in the capillary walls, the formation of a hard exudate, hemorrhage, or ischemic areas. The condition, if confined to the retina, is usually controllable, and leaves no loss of vision. If the localized condition affects the macula, there may be loss of central vision that may or may not be helped by laser and diet control. This condition is gradual, long term, and carries a favorable prognosis.

Diabetic retinopathy proliferans is a more devastating blood vessel disease of the retina and vitreous that may lead to severe vision loss and other eye diseases. The vitreous becomes filled with abnormal blood vessels formed from the surface of the retina. The new blood vessels are fragile; therefore they rupture. Interference of the light traveling from the lens to the retina takes place. Small hemorrhages absorb quickly; greater hemorrhages may be slow to absorb or never go away. Scar tissue forms. There may be a fibrovascular scar pulling on the retina with retinal detachment resulting. New vessels sometimes form on the iris appearing as reddening or rubeosis. There may be distortions or blank areas in the visual field. Vision remains adequate as long as the new vessels stay on the edges of the retina and there are no other complications. Extensive vascularization may occlude the vitreous allowing no light to pass through it. Hemorrhage into the anterior chamber of the eye may form hemorrhagic glaucoma, producing a loss of side vision. If the macula becomes detached or obscured through hemorrhage, central vision will be lost.

Treatments for Retinopathy and Other Complications

It is essential that persons with vision changes be encouraged to seek specialized care from physicians and opthalmologists who are adept at treating these conditions. Conservative medical treatments include control of diet, relief of infections, reduction of blood cholesterol levels, regulation of blood plasma actions by drug therapy, stabilization of blood pressure, and improved kidney function.

The earliest and most common treatment to the eye for hemorrhages and proliferation is photocoagulation. This is done by means of a xenon arc lamp or argon laser. It results in local destruction of the new capillary nests. Bright intense light prevents the development of vessels by scarring the target organ, the retina, and reducing the stimulus for neovascularization.

Cryovac surgery, which involves freezing, may be successful in closing a hole made by retinal detachment or decreasing aqueous formation in glaucoma. Diathermy consists of simple application of heat to the area of the sclera overlaying the hole of a detached retina.

Vitrectomy surgery is a procedure in which the vitreous hemorrhage is withdrawn from the eyeball and replaced by saline. This may restore vision by permitting the light source to reach the retina.

Medications, both local and systemic, may relieve glaucoma. Surgical reduction of pressure may be achieved through a filtering operation which provides a channel for drainage. A surgical buckle is a technique which provides for reattachment of the detached retina.

Cataract removal may be necessary in order to improve

vision or to avoid disintegration of a completely opaque lens. Appropriate methods include cryroextraction, phakoemulsification, and iridectomy.

Formerly, an oblation procedure was performed to prevent generalized blood vessel disease. This involved removal of the pituitary gland. The operation has become obsolete because of the terrible side effects that were the tradeoff for vision.

The current available treatments may or may not be appropriate at various stages of the disease. A great many patients receive safe and effective results from these interventions.

Diabetes is a systemic disease that affects all of the organs of the body. Because the blood vessel disease origin of retinopathy, it is often accompanied by general nerve damage (neuropathy) and kidney disorders (nephropathy). The patient may be involved in extensive treatments for these conditions. Attention to these resulting complications may be essential in addition to weighing the impact of vision loss.

The recent increased effort to discover causes and treatments promises an improved outlook for the future.

Definitions of Visual Impairment

If vision is lost from retinopathy, it may be fast and complete, slow and insidious, or controllable and reversible. The ophthalmologist is able to measure and record both the sharpness (acuity) and range (peripheral or side) of vision.

Visual acuity is expressed by a Snellen score measured by a Snellen chart. A 20/20 score is meant to indicate perfect clearness of vision. A 20/200 score indicates that a person has to be within 20 feet to see something that can ordinarily be seen at 200 feet.

Peripheral field vision can also be measured and indicates the width of the visual field. The normal visual field covers 180 degrees. The examination reveals how far to the sides a person can see when looking straight ahead.

For purposes of needs assessment, the definition of vision can be categorized as: severe vision loss and legal blindness.

Severe vision loss is a long-term loss of ability to read the largest letter on the eye chart from a distance of five feet, even with glasses. Problems can occur in the range of 20/40 to 5/200 with or without field restriction.

Legal blindness is declared when there is 20/200 vision or less in both eyes with correction, or when peripheral vision is less than 20 degrees diameter. A person can have significant useful vision or vision that can be substantially improved with low vision aids. Conversely, only motion, such as hand movement may be measurable at near distances. Vision may diminish so that only light and darkness can be determined or there may be an absence of light or forms.

With this wide range of discrepancies, problems may differ vastly among persons and for persons at varying times.

The Needs of Persons Who Have Severe Vision Loss from Retinopathy

During the period of beginning vision loss, the person with retinopathy may be in need of a strong support system. It cannot be stressed enough how much turbulence and uncertainty exists as hemorrhages occur, then are absorbed; treatments are attempted with various results; hope is encouraged and dashed; and the significance of other diabetic complications surface to temporarily obscure the visual concerns. Help during this time may set the stage for handling the more severe losses that may take place should more extensive damage evolve.

The diabetes educator is in an excellent position to interpret the meaning of mysterious words, diagnoses, treatments, and equipment. It may be necessary to identify or describe the early signs of visual impairment. Personal and vocational counseling perhaps will need to be recommended. Low vision assessments and remediation can offer tremendous hope and relief when appropriately defined. The teacher who knows agencies, resources, and materials can be invaluable. Special aids and appliances sometimes change a person who is legally blind into the category of severe vision loss.

Information and Helpful Hints for Persons with Severe Vision Loss

Symptoms

- Early signs of vision loss may be bumping into things, appearing disoriented in a physical setting, not looking directly at people when speaking, reading only large print, having to hold materials very close, or seeing out of only certain parts of the eye.
- Symptoms about which a person may complain are persistent blurring vision, floaters or dots in the eyes, flashes of light, and sensitivity to sunlight.
- Retinopathy is identified usually by a central field loss, defective night vision, and preference of average or bright light. Other complications may be involved if a person complains about peripheral field loss, preference to dim lights, or defective color vision.

Resources

- Counseling may be necessary to help a person through this very difficult time. Issues that may be hard to deal with include threat of job loss, driving difficulties, some evidence for the need of rigid diabetes control to ameliorate complications, relationship changes with significant others, and fears for the unknown future.
- Referral to the hospital social service department, private counseling agency for family or individual counseling, or a local support group for persons with low vision[16] may be in order.
- Vocational guidance can sometimes be obtained through the state's rehabilitation commission.[14,21]

Aids

- The use of optical and electronic aids to read, perform other close tasks, and better view distant objects, helps a high proportion of people with vision problems.[24]
- Low vision evaluation and remediation have together become a specialty in optometry. Expertise is available to provide the best equipment, proper encouragement for adopting new methods, training for compensation necessary to adapt to the new system, and instruction in efficient use of residual vision.
- Magnifiers are common and simple. They produce an image large enough to be identified by the residual vision. They can be hand-held, mounted on a stand, or attached to eyeglasses. Some have their own light source. They are often

sufficient to enable a person to locate a phone number, read the name of a medication on a prescription bottle, or perform a work function.

- Field enhancers are used by people whose vision is restricted to a small area. The purpose of these is to broaden the visual field so that an adequate picture of the surroundings can be built up and the person can move around more safely, a need so important to someone with diabetes.
- Telescopic aids are available for distance viewing. They may be monocular or binocular (for one or both eyes). They can be hand-held, headborne, or attached to a ring on the finger. These telescopes can be helpful for seeing a chalk board, checking a street sign, or watching a movie.
- Bioptic systems contain two optical systems within one spectacle frame. They help the person with low vision to see both near and distant objects simply by moving the head to select the lens.
- Closed circuit television reading aids in some ways resemble television sets. A camera views the material and conveys the image to a monitor that looks like a television screen, where the image may be greatly magnified or the contrast improved. The CCTV can be extremely helpful in reading meal plans, handling correspondence, reading typewriter type, scanning microfiche, or even providing computer access. It can increase the reading rate and duration of reading time while decreasing fatigue.
- Special aids and appliances sometimes change a person who is legally blind into the category of severe vision loss.

Legal Blindness

In the late 50's Father Thomas J. Carroll pioneered methods of rehabilitation for newly blinded or adventitiously blind adults. In his book, *Blindness: What It Is, What It Does, and How to Live with It*, Father Carroll described twenty different losses that a person experiences when blindness happens.[33] These include losses in psychological security, basic skills, communication, appreciation, and losses concerning occupation and financial status, with resulting loss to the whole personality. He described how these affected people with diabetes and recommended that educators and rehabilitation workers make efforts to restore those losses. Indeed, he founded the Carroll Center for the Blind in Newton, Massachusetts in an attempt to address these losses. In those days, as now, a good percentage of adults needing services were blind from diabetic retinopathy.

People who are blind from diabetes mellitus have some very special problems because of both the disease and the visual impairment. Some specific needs seem to surface frequently in the areas of personal independence, techniques of daily living, financial security, communication skills, mobility, and training of the remaining senses. It is essential that the diabetes educator understand the nature of these needs, the impact of diabetes in general, the resources available to assist, and the techniques for skill restoration.



The use of optical aids to perform tasks.

The Need for Personal Independence in Persons With Visual Impairment

Natural maturation of relationships with other persons involves a healthy balance between dependence and independence. Being able to do for oneself stimulates pride and a sense of personal strength. To be placed in a position of having to rely on others to perform routine functions decreases a person's feeling of worth. Diabetes oftentimes accentuates normal dependency versus independency struggles. Sickness and stress interfere with being able to be in control. An overprotective environment may cloud relationships. Blindness further complicates these issues.

Persons who have the need for increased personal independence can be helped to develop confidence. Finding strengths within will diminish the feelings of creating discord when requesting help. Guidance in realistically assessing and prioritizing the times when assistance is required may be helpful. Providing suggestions about who and how to contact persons available to provide relief to significant others is a must. There are special points to be aware of in encouraging personal independence:

Information and Helpful Hints for Restoring Personal Independence

- Living alone is possible for someone with visual impairment. A system of notifying a neighbor by raising a shade or opening the mailbox each morning to indicate that a person has arisen offers the security of being able to receive emergency aid in the event of an accident, hyperglycemia, or a severe insulin reaction.
- Alarm systems are available to announce emergency need.
- Insulin measurement is a skill that can easily be restored. Because of the inconsistency and unreliability of vision once hemorrhaging has occurred, it is recommended that a non-visual technique be taught. A combination of the Holdese and Insulgages is an excellent tool. The syringe and vial are placed in the plastic holder, while appropriately numbered gauges are gently placed on the barrel as insulin is withdrawn. For people on two different types of insulin a gauge of the smaller dosage is first used, followed by a gauge of the total amount of required insulin. No air, no contamination, and no errors occur after supervised practice. Instructions are readily available from the manufacturer.[29]
- Accurate measurement of medicine can be facilitated by a drop-a-time medicine dropper or teaspoon medicine dropper.
- Rotation of insulin sites may be expanded by a band which pulls together an undesirably thin area in the arm, buttock, or thigh.[7]



Measuring insulin using Holdese and Insulgage by touch.



An arm band locates flesh for insulin administration.



Monitoring blood glucose with Beta Scan Audio and finger guide.

- Blood glucose monitoring, now routine for most people with diabetes, can be performed by a monitor with an audible voiceout.[27]
- Obtaining blood for monitoring can be aided by a finger guide with a slot for the test strip and prongs to direct the blood flow.[27]
- Kits are available to carry insulin and equipment in a pocketbook or suitcase.[37]
- Transporting previously measured insulin via a toothbrush holder can facilitate injections away from home.
- Eye drops can be administered by placing the dropper between the index finger and thumb, resting the little finger on the bridge of the nose, and gently pulling the lower lid down with the heel of the palm. The head can be tilted back and the prescribed amount of solution inserted. Many feel that a small amount of wasted liquid is a small price to pay for independence.
- Insulin pumps or peritoneal dialysis are seldom initiated for persons already blind. For those persons already on these treatments, it will be necessary to develop techniques specific to an individual's needs in order that continuing monitoring and controling of programs be self-managed.
- People who are blind from retinopathy like to be independent, but they also like to know when they are in the presence of someone else. They appreciate being addressed directly, and told who is addressing them when they are offered a hand to shake, and told when they are being left.



Teaching a person to insert eye drops tactually.

The Need for Techniques of Daily Living for Persons with Visual Impairment

When a person loses vision, the numerous simple tasks of the day become more difficult i.e., accounting, cleaning, cooking, identifying, matching, medicating, phoning, repairing, smoking, and spending.

Self-reliance in personal management occurs as the person relearns tasks through special adaptive techniques or through the use of special aids. Several approaches to solving problem tasks of daily living may be necessary to find those that are most effective and functional.

A person with visual impairment finds techniques of daily living even more frustrating because of the unique demands imposed by the disease. Foot care is more difficult. Injury is more common. Neuropathy diminishes the ability to discover cuts. A systematic procedure for daily examination and treatment of the extremities must be learned. Routine visits to a podiatrist must be established, necessitating yet another doctor's visit and cost.

People need to be able to develop plans for prevention of further complications. Instructions need to be given in toileting, oral hygiene, skin care, and recognition of infection. Instruction in shaving and smoking safety are essential.

Many food issues emerge i.e., preparing, measuring, flavoring, weighing, choosing, exchanging, eating, and soiling. For many who feel that life has evolved around food schedules, self-denial, guilt feelings, and inconveniences, these issues may surface in dramatic proportions. Skill in preparation and eating can foster pleasurable dining and thus further compliance.

Helpful Hints for Restoring Techniques of Daily Living

- Catalogues describing useful aids and devices, and evaluated by experts, are readily available from suppliers.[3,8,24,25,26,28]
- Resources exist that describe how to do what in an easily understood manner.[36,37,38,39,40]

Medication

- Medicine bottles can be identified with elastic bands of varying numbers or sizes.
- Shelves can be organized by putting foods or medicines alphabetically and by kind.
- Felt pens come with varied width points and oftentimes provide large enough print to see emergency numbers, recipes, labels, and addresses.
- Appliance dials can be marked at key points with dots of glue, pegs or Hi-Marks.[25,28]
- Alarm clocks or timers can be set to remind a person when medications are due.

Cooking

- Timers can be used to cook food instead of relying on only smell and touch.
- Food cans or boxes can be labeled with *Lobels* that are shaped like the foods they identify.[26]
- Ingredients of foods can be measured by using equipment such as ice cream scoop of varying size, individual poached egg cup, custard cup, ladles, baster, eye dropper, jigger, or measuring cup set.
- The amount of food being served can be estimated by examining with eating utensils. Learning the weight of containers and usually eaten foods may be helpful.
- Liquids are poured using muscle memory to weigh a cup and know how much liquid is being poured into it. This skill avoids burns which occur when a finger is placed into hot water.
- Toast can be retrieved from a toaster safely through the use of wooden tongs.
- A pilot light is safely lighted by a metal spark maker.
- Dishes in the oven can be found and manipulated with a wooden rack puller found in the local gourmet shop which avoids the danger of igniting heavy, awkward, or flammable mitts.
- Dishes on top of the stove can be located by cooking chopsticks or wooden spoons.
- A meat themometer with raised marks tells when foods are cooked.
- Meats can be cut on a nail studded carving board which is secured to the counter with suction cups. Contrasting colors of meat, board, and counter may be helpful.
- Observation of foods may be easier if placed in pots and pans of contrasting color.
- A locklid sauce pan with holes for draining reduces the danger of spilling hot foods.
- Cake tins may have raised dots made in the metal around the edges spaced so a ruler can be laid across to achieve uniform cutting.

Photos by O'Neil



Rubber bands help identify different insulin doses.



Pouring coffee relying on muscle memory.

- Squeeze bottles can be used to serve liquid salad dressings and oils.
- Salt and pepper can first be put in the palm of the hand or dispensed over spread out finger tips.
- Condiments can be put into side dishes and measured with a spoon.

Eating

- The location of foods on a plate or table can be described by referring to the numbers on a clock.
- Relearning eating skills can be facilitated by learning to eat familiar foods first.
- Spills can be avoided by developing a mental map of the table or work area through a light finger tip survey.
- Food can be probed, estimated, and located by delicately using a fork.
- Good posture at the table may determine skillful dining. The person should sit up squarely in front of the eating area, with the body bent slightly at the waist and head slightly over the food. A dish placed too far away encourages dribbling.
- Landmarks at the table can be established by positioning the elbows on the edge of the table.
- Plan the order in which foods will be eaten. Some foods are best eaten first, using others to provide attachments. When roast beef, mashed potatoes, and peas are served, leaving the peas until last could be an exercise in futility.
- A pusher greatly facilitates getting food onto the fork. This can be a knife or bread. Foods should periodically be pushed toward the center of the plate.



Landmarks established by positioning elbow properly.

Grooming

- A shaving technique can readily be relearned by a man who is physically able and motivated using a systematic approach and the sense of touch. For some it may be easier to use an electric razor, but this is not automatically necessary.
- Toilet use encouraging good hygiene and infection prevention can be aided by wiping the seat with paper toweling before and after, and disposing of the towel in the wastebasket.
- A bathroom fan may need to be activated by turning on the bathroom light.
- Men can be taught to urinate accurately by learning a system of centering the body and aiming at an angle, squatting with face toward the toilet and planting the feet firmly for orientation or sitting.
- Women should be taught how to distinguish symptoms of yeast and urinary tract infections because of the high incidences with diabetes. These may include itchiness, discharge, and discomfort.
- Menstruation requires preplanning with available sanitary pads and the ability to recognize beginning and cessation.
- Toothpaste can be squeezed into the palm of the hand or applied by the finger.
- Body weight can be assessed by using scales with voice output, waist-high dial, or movable weights that can be felt. Bright adhesive tape at the usual weight may be helpful to some.
- The end of a cigarette can be identified by a finger that slides away as a lighter moves into place, using muscle memory and past visual memory. A portable silent butler assures that cigarette ashes are extinguished. A metal adhesive bandage or lozenger box will do the trick.
- Techniques for elimination of the smoking habit should be prompted for obvious health reasons. They may include a behavior modification program, support group, commercial plan, hypnosis, or acupuncture.

The Need for Financial Security in Persons with Diabetes Who Are Blind

When a person becomes legally blind from retinopathy, financial concerns multiply. Frequently there are loss of jobs, increased medical bills, and diminished resources. The diabetes educator can help put the person in contact with supplementary aid if appropriate, support the efforts of vocational counselors to secure employment, and help process bills for maximum benefits.

Various supplemental sources of money include Aid to the Blind, Social Security disability insurance, and individual company or insurance policies. Each state has a division for services to people who are legally blind that is able to provide social and vocational services, financial aid, instruction, and guidance. The experts within these agencies can provide information to both the diabetes educator and the person who is blind from diabetes.

In addition to helping the person seek outside help, it is well to recognize how the money is spent. Difficulties may be experienced because of the increased medical bills. Insulgages, audiometers, insulin, medicines, equipment, surgery, and nursing care all cost money. Mobility expenses may be increased with cab and sighted guide payments. In order to read mail, perform a job, or become informed, the person may have to hire a reader. In obtaining food, it may be necessary to pay someone to shop or carry groceries. It costs more to eat in a sit-down restaurant than in a self-service establishment.

With a decreased income and increased expenses, an informed financial plan is necessary.

Helpful Hints for Restoring Financial Security

- Public agencies for the blind are generally autonomous within the state's structure. They may receive some federal financial support and supervision through grant funding. In some states they are independently identified as a Commission for the Blind. In others they may be located under the department of Human Services, Vocational Rehabilitation, or the Board of Education.[5,6,15]
- A physician's prescription indicating insulin dependency, difficulty with control, and diagnoses as well as careful documentation of costs will now frequently result in third party payment for expenses once rejected.
- Record keeping of bills related to diabetes and visual impair-

ment involves collecting, organizing, and retrieving items which may be deductible or reimbursable. Materials can be appropriately filed with the use of braille, tape cassettes, Voxcom, or large print.

- Accurate mathematical computation for personal use can be facilitated by an abacus or talking calculator.
- Handwriting guides allow independence in everyday activities such as letter writing, check writing, signature signing, and business transactions.
- Appropriate clothing for maintaining employment may be aided by hints for shopping, coordinating clothes, avoiding or recognizing stains, and keeping up with the styles.
- Color of clothes may be identified by attaching braille labels.
- Texture of cloth may be more easily recognized by a person with neuropathy when exploring with the palm rather than the fingertips.
- Money carried in an organized way adds to a person's confidence and security. Each money denomination can be folded a different way with large bills stored separately. Coins can be identified through size and ridges.
- Credit and identification cards can be distinguished by notches made in them.



A signature guide facilitates signing the name.



Using a folding system to locate money.

The Need for Communication Skills in Persons Who Are Blind

The person who is visually impaired has difficulty with both written and spoken communication. Written communication may be affected by a person's ability to record and retrieve information. It is often difficult to write a message that can be read back either to oneself or to others. For this reason people are taught to read and write letters and numbers with the fingers through a process called braille. Typewriting and handwriting skills can be enhanced to get written messages to other people. Tape recorders, handwriting aids, radios, labeling devices, raised line drawings, braille menus, voice synthesizers, abacus, talking calculators, Voxcom, message recorders, the optacon, versa braille, and Talking Books are all aids to help a person's communication improve.

In addition to help with writing, the person may need help with social interaction. Knowing who is being addressed, when a person is being spoken to, where to look, how to put others at ease, and avoiding the appearance of being detached are all essential. Developing skill in localizing sound, relieving tension, and using past visual memories is extremely helpful for all people who are blind. The goal of spoken communication restoration is to have the person comfortable in everyday conversation and in group situations, using normal gestures and mannerisms as well as being able to use techniques for putting other people at ease. Alternative methods of communication can be developed with instruction in areas that will attain the most independence while recognizing specific goals and abilities.

People who have both diabetes and are visual impaired often complain about the difficulties they have in knowing about recent updates in medical care and research, looking up the doctor's phone number, obtaining necessary service, reading the meal plan or medicine prescription, signing their name, perusing a menu, observing the doctor's facial expression, evaluating the meanings of silence, and interpreting their fluctuating visual losses to others. They fear injury or embarrassment when using gestures, so use less expression. Many times they are bothered by the distorted appearance of one eye or both eyes. Helping a person discuss these difficulties and resolve some of the issues can be a most valuable contribution. Encouragement to contact public and private agencies as well as facilitating such contact may be an invaluable means of securing a number of different supports or services.

Helpful Hints for Restoring Communication Skills

- A dial or push button phone may enable easier access to other people when covered by a raised numbered or braille template.
- Emergency assistance can be obtained more readily by knowing the correct number to call. Dialing the operator may result in significant delay.
- Written materials for people who are visually impaired are available in both braille and large print from special printing houses. Available are periodicals, textbooks, music scores, cookbooks, fiction and nonfiction, and lists of publications for workers in the field of blindness.[4]
- Private, voluntary organizations exist to provide persons with diabetes and retinopathy opportunities to join together for increasing sociability, lobbying efforts, obtaining aids, providing information, and promoting research.[1,2,3,9,10,11,17,18,20]

- Public, tax financed organizations are maintained to provide services for all people who are declared legally blind. They offer counseling, financial aid, the Talking Book service, medical assistance, income tax abatement information, instructions in daily living and leisure time activity, information and referral, as well as orientation and mobility instruction.[5,6,14,15,19,23]
- Tape recorders offer practical application for recording diabetic recipes, menus, grocery lists, information about travel routes, directions, medication instruction, checking accounts, bill paying information, address-phone files, lectures, personal correspondence, personal notes, and apppointments.
- Labeling cassettes facilitates location of desired information.
- A calendar that is nonvisual or low vision is helpful for planning dates, keeping medical appointments, and maintaining independence.
- A transcribing service may be the answer to some extensive communication needs.
- A Talking Book machine is available free of charge to anyone who has a disability that prevents reading. The machines are available on either records (discs) or tapes. Playback equipment and special attachments are supplied for eligible persons on extended loans. Recordings for the Blind, free from the Library of Congress, include books, musical compositions, magazines, and texts.[12,22]
- Technology in the education and rehabilitation of the person who is visually impaired includes: special monitors that display letters in sizes up to six inches which interface with computers and microcomputers; computer programs for converting braille into print, print into braille, and grade one braille into grade two braille; printers which produce braille and large print copy; hardware and software which convert what is seen on a computer terminal into synthesized speech; microcomputer systems with add-ons to provide information visually, tactually, and vocally; a reading machine that converts optical symbols (print) into synthesized speech; paperless braille machines and word processors that double as braille input/output computer terminals; software for computer assisted instruction; and a large print microcomputer that generates characters up to five inches high.[26]



Sharing strengths, skills, needs, and ideas.

The Need for Mobility in a Person with Retinopathy Who is Visually Impaired

Being able to travel with safety, independence, and confidence in familiar areas, inside and outdoors, often becomes a monumental problem for someone who loses vision. The freedom of mobility can be restored with the use of travel tools and development of the other sensory systems.

There are four main methods of mobility — alone and unaided, with a human guide, with a guide dog, and alone with the aid of a long cane. All of these methods may be appropriate for some at certain times. Training is necessary to help develop goals, master techniques, locate obstacles, and restore independence.

A formal mobility program consists of a structured sequence of lessons enabling the person to use a functional body scheme, spatial relationships, concept development, residual vision (if any), and perceptual motor behavior in moving about the environment safely, efficiently, and with confidence.[41]

Mobility needs for a person with diabetic retinopathy are the same as for all others who are visually impaired, but are magnified by diabetic tendencies toward further complications and prolonged healing should injury occur. In addition, mobility for a person with diabetes is effected in specific ways. The exercise involved in movement may be increased or decreased and either way play havoc on the blood glucose and insulin balance. Neuropathy may cloud the sensitivity of touch when the long cane is used as an extension of the index finger. Circulatory problems in the feet and legs may affect sensation and balance. Damage from strokes may cause walking limitations. Circulatory complications in the lower extremities may require prosthetic devices, individualized gait training or long periods of immobility. Fear of injury may influence career, participation in recreation, and feelings of social adequacy. Getting to and from doctor's appointments may be a big problem. Inability to travel freely may result in withdrawal and isolation.

The diabetes educator may be called upon to aid in resolving some of these dilemmas. The pros and cons of obtaining a guide dog may be considered. A dog may be a marvelous companion and tool for independence for a person who is well, strong, able to walk briskly, and go great distances. Physical integrity and a good sense of balance are necessary. Dogs may serve as a means of improving the health of a person with diabetes by increasing stamina with carefully controlled exercise. The dog and the person must be compatible. Most important, training in mobility and sensory development, as well as personal adjustment to blindness, must come first.

Family stress may occur when the human guide is needed too frequently. Attention to increased medical concerns alone may create unbelievable demands. It may be appropriate to suggest alternate substitutes, other family members, a paid aide, or an impersonal volunteer.

People may resist using the long cane because they feel it is a symbol of blindness or being different. The cane's values of safety, efficiency, and independence may need reinforcement.

Helpful Hints for Restoring Mobility

- Persons who have suffered a stroke or amputation may need

to use a support or tripod cane, along with a long cane. Both left and right handed canes are available.

- Careful attention to hazards and obstacles can be the means of avoiding injuries harmful to a person with diabetes.
- Doors and cupboards should routinely be tightly closed.
- Rugs and carpets can be secured by rubber backing of tape.
- Thresholds should be made flush with floors to prevent tripping.
- Rooms well organized with furniture consistently placed promote confidence.
- Low tables may be more obvious if covered with a bright cloth.
- Corners are softened by self-adhering felt tape to prevent bruises.
- Extension cords should be placed out-of-the-way to alleviate the danger of tripping.
- Dark furniture may be more easily located by a lighter wall.
- Steps and stairways are improved by strong light and brightly colored carpeting that provide contrast.
- A request for assistance may mean a request for directions. Clear, concise, description is in order. "Over there and down the street" is better understood by "Straight ahead of you, cross the street, turn left, and walk to the fourth doorway."
- Sighted guide instruction helps both the person who is visually impaired and the helper. It may be advantageous to point out techniques to family members. Sense of security and control is felt when *walking a half step behind the sighted guide.* The hand of the person who can't see well gently holds the area just above the sighted guide's elbow. The person who is visually impaired follows the motions of the guide. The grip can be released preventing further motion if danger is perceived.
- When leading someone on stairs, approach directly and pause at the foot of the stairs, describing if they go up or down, then mention the location of the rail. Proceed one step ahead, pausing at the landing.
- When helping a person to a chair, a mishap will be avoided if the front of the chair is indicated. Place the hand on the seat and then on the top of the chair's back. Make sure that physical contact with the seat is made before turning away.
- When leaving a person, a point of contact should be established with a chair or wall. Being left in the middle of the room without landmarks can cause an awkward appearance, disorientation, balance problems, or injury.
- When entering a car, the person can control movement when given information about which way the car is facing and having the right hand placed on the door knob. The person puts the left hand on the car roof to protect the head and eases into the seat after sweeping the seat for objects.

Photos by O'Neil



Walking with a sighted guide.



Examining a chair before sitting to prevent injury.

The Need for Training the Other Senses for Persons Who Are Visually Impaired

Traditionally, we rely on our vision as our major sense. When vision is lost, there may be despair that nothing can replace that sense causing lack of confidence in the remaining senses.

Training and reorganization of the senses are important aspects of restoration. A person can learn to attend to information received from residual vision, visual memory, as well as auditory, tactual, and kinesthetic information. The input can be synthesized into a set of meaningful data in order to interpret the environment. Instructing people in how to concentrate and rely on the remaining senses of hearing, taste, touch, and smell, as well as the kinesthetic sense (involving balance, movement, and motor memory) is imperative.

Hearing can be trained to locate sound sources such as the refrigerator, and to avoid hazardous injuries. It is not true that hearing automatically becomes more acute with vision loss, but attentiveness to auditory information does occur. Hearing certainly can be trained to do a lot of the functions formerly performed by vision.

The sense of smell is stimulated by scents which provide general information to a person. It is of limited use for localizing sources in mobility as it quickly permeates the whole environment. Pleasant smells encourage good hygiene, enjoyable dining, and relaxing relationships.

Training in discriminate tasting helps develop appreciation for food and, in many instances, a more appropriate meal plan. Smokers who become nonsmokers soon realize the pleasure of taste bud sensual gratification as well as other obvious benefits.

The sense of touch is invaluable to a person with diabetes in measuring and administering insulin, locating food and other objects, feeding oneself, and finding abrasions. Methods for avoiding temperature extremes must be learned.

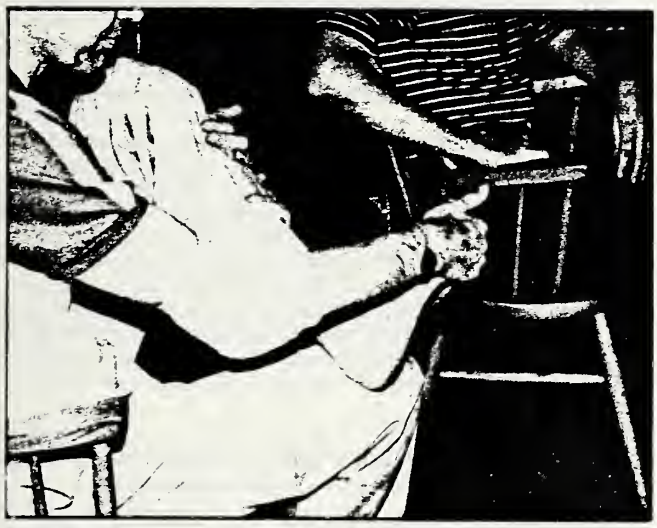
Kinesthesis comes into play with exercise, food weight, balance, confidence, and relaxation. Muscle memory is activated when feeding oneself or writing a signature.

Neuropathy may affect all of the senses in varying degrees. Receptors may be diminished in hearing, taste, and smell as well as touch. Realizing this may help a person accommodate to the deficiencies.

When neuropathy occurs, the kinesthetic senses may have to work extra hard. Mobility for a person whose feet have become insensitive may necessitate attention to relying on how far the feet are lifted or the degree of muscle flexion in a particular movement.

Helpful Hints for Training the Other Senses

- A foot examination may be performed more accurately with the palm of the hand if it is more sensitive than the fingers.
- Braille reading may be made easier by first warming the hands or by using Jumbo Braille.[25,28] Contrary to popular belief, most people with neuropathy can be taught braille. Resistance sometimes occurs because braille, like the long cane, represents a sign of blindness. Emotional support to overcome that barrier may be necessary.



Searching the feet for abrasions by using palm instead of fingertips.



Beginning an exercise program after prolonged inactivity.

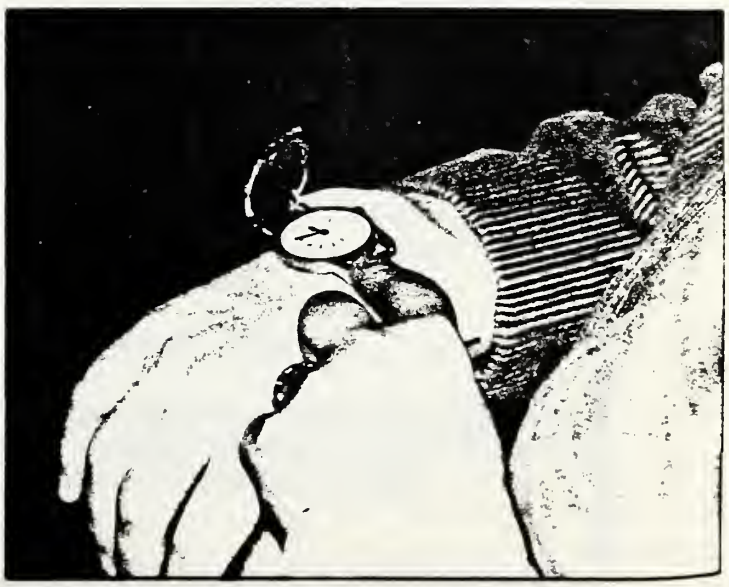
- An exercise plan may have to take into consideration a person who has been inactive for a time. Muscle stretching and toning may at first be best accomplished when sitting in a chair or leaning against a wall.
- Many audible aids exist to help the person who cannot see. Equipment that has voices include clocks, calculators, computers, blood glucose monitors,[27] travel alarms, wrist watches, food scales, and body weight scales.[25,28]
- Insulin can be measured with a Click Count Syringe or Beta Jack using both hearing and touch.[27]
- Blood for monitoring can be withdrawn from the earlobe, if preferred, by using the sense of touch, muscle memory, and positional landmarks.
- A simple timer can be set to remind a person when to take a medication or consume food.
- A braille watch or clock may be more economical and useful than any other kind.
- Voxcom is a recording device for simple messages, phone numbers, recipes, or doctor's instructions. They can be easily brailled and information is retrieved by listening to the recorded message.

Conclusion

The person whose diabetes has become complicated by visual impairment is faced with a myriad of new people to meet, decisions to make, terminology to understand, adaptations to assimilate, disappointments to overcome, and conflicts to resolve. It is indeed a stressful period. Assistance in meeting the day-to-day challenges can be the force to help conquer overwhelming obstacles.

The diabetes educator is in a position to provide unlimited information, motivation, and support to a person with diabetic retinopathy. It is not necessary to be an expert in some very specialized areas. Rather, it is vital to be able to make contact with and interpret the recommendations of such people as a diabetologist, ophthalmologist, counselor, teacher of the visually impaired, low vision specialist, mobility instructor, organization representative, and resource provider.

Being familiar with the functions and scope of different persons can alleviate frustration and confusion on the part



Telling time with a Braille watch.

of the person needing services from a number of varied sources. Supporting the efforts of family, friends, and spiritual advisors may be possible. Offering helpful hints to overcome some common difficulties can be extremely useful. Diffusing the barriers to learning will, indeed, make the visually impaired person a more receptive candidate for successful re-entry into the sighted world. □

National Agencies

1. American Council of the Blind, 1211 Connecticut Avenue, NW, Suite 506, Washington, DC 20036. (202-833-1251)
2. American Diabetes Association, 600 Fifth Avenue, New York, NY 10020. (212-541-4310)
3. American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. (212-620-2000)
4. American Printing House for the Blind, 1839 Frankfort Avenue, PO Box 6085, Louisville, KY 40206. (502-895-2405)
5. Blinded Veterans Association, 1735 DeSales, NW, Washington, DC 20036. (202-347-4010)
6. Bureau for the Blind and Visually Handicapped, 330 C Street, SW, Washington, DC 20201. (202-245-0918)
7. Carroll Center for the Blind, 770 Centre Street, Newton, MA 02158. (617-969-6200)
8. Center for Independent Living, 218 East 15th Street, New York, NY 10003. (212-675-7580)
9. National Association for Visually Handicapped, 305 East 24th Street, New York, NY 10010. (212-889-3141)
10. National Diabetes Information Clearinghouse, Box NDIC, Bethesda, MD 20205. (301-496-7433 or 202-842-7630)
11. National Federation for the Blind, 1800 Johnson Street, Baltimore, MD 21230. (301-659-9314)
12. National Library Service for the Blind and Physically Handicapped, Library of Congress, 1291 Taylor Street, NW, Washington, DC 20542. (1-800-424-8567)
13. Perkins School for the Blind, 175 North Beacon Street, Watertown, MA 02172. (617-924-3434)
14. Rehabilitation Services Administration, 330 C Street, SW, Washington, DC 20201. (202-245-8492)
15. Veterans Administration Central Office, 810 Vermont Avenue, NW, Washington, DC 20402. (202-389-3775)
16. Vision Foundation, Inc., 2 Mount Auburn Street, Watertown, MA 02172 (617-926-4232/Toll-free 1-800-852-3029)

EXAMPLE OF REGIONAL AGENCIES (MASSACHUSETTS)
(Comparable agencies exit in most states)

17. Diabetes Association — Massachusetts Affiliate, 377 Elliot Street, Newton Upper Falls, MA 02164. (617-965-2323)
18. Massachusetts Association for the Blind, 200 Ivy Street, Brookline, MA 02146. (617-738-5110/Toll-free 1-800-682-9200) (Regional Offices)
19. Massachusetts Commission for the Blind, 110 Tremont Street, Boston, MA 02108. (617-727-5500/Toll-free 1-800-392-6450) (Regional Offices)
20. Massachusetts Federation for the Blind, Box 26, Flint Station, Fall River, MA 02723. (617-679-8542)
21. Massachusetts Rehabilitation Commission, 11th Floor, Statler Building, 20 Providence Street, Boston, MA 02116. (617-727-2183) (Regional Offices)
22. Library Services, Perkins School for the Blind, 175 North Beacon Street, Watertown, MA 02172. (617-924-3434)
23. Veterans Administration Medical Center, 150 South Huntington Avenue, Boston, MA 02130. (617-232-9500)

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American Foundation for the Blind.
25. *Aids and Appliances for the Blind and Visually Impaired*
Independent Living Aids, Inc., 11 Commercial Court, Plainville, N.Y. 11803.
26. *Aids and Appliances Review*
Carroll Center for the Blind.
27. *Audio Blood Glucose Meter with New Electronic Voice*
Orange Medical Instruments, 3183 Airway Avenue, Suite F, Costa Mesa, CA 92626. (714-641-1674/Toll-free 1-800-527-1151)
28. *Products for People with Vision Problems*
American Foundation for the Blind
29. *Self-measurement of Insulin with Insulgage Guides*
Meditec, Inc., 9485 East Orchard Drive, Englewood, CO 80111. (303-771-4853)

Blindness

30. *Brochure of Services of the Massachusetts Commission for the Blind*
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Diabetes

36. *The Diabetes Educator*
American Association of Diabetes Educators, North Woodbury Road/Box 56, Pitman, NJ 08071. (609-589-4831)
37. *Diabetes Forecast*
Diabetes Forecast, 2 Park Avenue, New York, NY 10016.

Techniques of Daily Living

38. *The first steps: a book about how to help people who are losing their sight.* Peninsula Center for the Blind, 2435 Faber Place, Palo Alto, CA 94303. (415-858-0202)
39. *Making Life More Livable*
American Foundation for the Blind
40. Mangold, Philip. *The pleasure of eating for those who are visually impaired.* Exceptional Teaching Aids, 20102 Woodbine Avenue, Castro Valley, CA 04546.
41. Widerberg, L. and Kaarlela, R. *Basic Components of Orientation and Movement Techniques.* Department of Blind Rehabilitation, Western Michigan University, Kalamazoo, MI 49008.

New AADE Headquarters Address

The American Association of Diabetes Educators has a new headquarters address. As of January 1, 1985, all correspondence should be addressed to:

American Association of Diabetes Educators
500 North Michigan Avenue, Suite 1400
Chicago, IL 60611

(phone: 312-661-1700)

Manuscripts should continue to be sent to: **The Diabetes Educator,** North Woodbury Road/Box 56, Pitman, NJ 08071.

AIDS AND APPLIANCES REVIEW

THE CARROLL CENTER FOR THE BLIND
770 Centre Street, Newton, MA 02158
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DIABETIC CONTROL: EQUIPMENT FOR USE WITH VISION LOSS

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Introduction
by
Donna L. Johnson

The person experiencing the condition known as diabetes mellitus soon learns that living and growing in harmony with it requires adaptation of lifestyle to meet the body's needs. It is important for the diabetic to learn to live, and grow, and enjoy life as naturally and independently as possible, yet as a conscientious diabetic. It is only by working with the body and not against it that the person can hope to achieve maximum health. To be successful, he or she must be educated about and willing to adjust to the necessary modifications now required to keep the body functioning as stably as possible. He or she needs to know about the causes, symptoms, and treatment of a very high or very low blood sugar; he or she needs to know how injected insulin, food intake, exercise, and stress affect the level of sugar in the blood in order to plan and carry out the tasks of diabetic control: monitoring glucose levels, proper food management, and corresponding insulin adjustments.

Even with conscientious attention to adapting lifestyle to the body's needs, the diabetic can experience serious long-term medical complications. Among them are cataracts, glaucoma, and diabetic retinopathy—a disease which affects the small blood vessels on the retina. For those persons experiencing legal blindness because of these eye complications, learning to continue living in harmony with their diabetes is still important. This harmony can be attained by gaining a better understaning of the condition itself and by learning to use special aids and appliances in place of eyesight: various special syringes and gauges for measuring the insulin; enlarged test tapes, charts, or audible analyzers for urine-glucose monitoring; brailled or taped diabetic diets, meal plans and cookbooks.

To assist the visually impaired diabetic in gaining this education, it is essential for the person working with him or her in rehabilitation to gain a basic knowledge of the diabetic's individual physical and psychological needs. Although diabetics share common traits, each person remains unique, with special, individual rehabilitative needs. It is imperative for the rehabilitation community to respond appropriately to these needs to make a positive difference in lives of persons with diabetes and vision loss.

Editor's Note

Diabetic control, with sight or with vision loss, is a complex procedure. Maintaining control of blood glucose levels—the central task—requires careful dedication to a routine which, to say the least, can impinge on very human desires to live spontaneously and to follow impulses—impulses to do what everyone else is doing, maybe just filling up on McDonald's french fries when the rest of the gang does it so harmlessly. But with diabetes such impulses can lead to the high levels of blood glucose characteristic of the condition—with damaging results.

Besides corralling such impulses, good diabetic control requires harnessing energy into a network of daily routines. Daily life must fit the routines of testing urine or blood for glucose as often as four times per day; measuring and injecting insulin at least once, and for some people, four times per day; and eating in accordance with an unvarying schedule of meal times and precisely planned menus. The regimen is intricate. Even with sight, handling it successfully demands a high degree of motivation, commitment, knowledge, and skill.

Ordinarily, in fact, sight is critical to the tasks of diabetic control: to test for glucose in urine or blood, a color change on a narrow reagent strip must be matched to the colors of a glucose percentage chart; the fine-line unit scale on the syringe must be read accurately to draw up the insulin dose for injection; to maintain the prescribed diet, ingredients and food portions must be measured in calibrated cups or spoons or weighed on a scale meant to be read with sight. The necessity for special, nonvisual devices and adapted techniques can become urgent with vision loss, a potential complication of diabetes. This issue of AAR aims to provide up-to-date product information about much of the available equipment designed for management of these tasks with vision loss; in addition, it includes blood glucose testing equipment, not yet adapted for use without sight. Of course, these devices must be used with knowledge of diabetes itself.

However, AAR does not pretend to make any steadfast pronouncements about diabetes or diabetic care. Within the field of diabetic care, controversy continues over such crucial topics as the best methods of insulin delivery and the role of high blood glucose levels in causing diabetic retinopathy. Few issues are settled. Given this present lack of orthodoxy, even approaching an understanding of diabetes can be a complicated undertaking with an uncertain outcome.

We would stress that no part of this issue should be taken as medical advice; we present all material about diabetic care in hope that it will provide points of departure for a continuing search for better understanding of diabetes and its control. Some, or much, of this material may differ from the clinical practices of some established medical centers—since variance in approach is a fact of diabetic care. And approaches and techniques described in this issue may well differ from the prevailing habits of blind diabetics embarking on a course of learning therapeutic techniques anew with vision loss. Recognizing such conflicts, we present all material on diabetic care per se advisedly. We offer it to those in the field of blindness rehabilitation who would begin to learn about diabetes and diabetes care as a necessary context for evaluating the devices and techniques which may be useful to the blind diabetic in the rehabilitation setting: aids for insulin administration, for blood and urine monitoring, for diet and exercise management.

To provide the background for the articles on aids, Issue No. 6 of AAR begins with an explanation of the condition and a brief history of insulin therapy.

Robert McGillivray
Marlene Gast

INSULIN THERAPY

Diabetes: Some Physiological Considerations for the Blind Person

by
Richard M. Connors, M.Ed.

The existence of numerous "Fifty Year" diabetics testifies to the fact that diabetes can be controlled; essentially normal lives can be lived with it.[1] For this to be so, however, the condition must be understood, faced for what it is, and dealt with. It is the goal, hopefully, of those of us involved in the rehabilitation of the blind diabetic to help him develop a state of health and continued expectation of health in which he himself will be the prime participant.

Advances in our understanding of the disease and important technological advances like home blood glucose monitoring have at last made this ideal possible.

Diabetes is not an easy disease to understand. The variety and complexity of books currently available on the subject amply demonstrate that. Many of these books are very good and treat the mechanics of control in great depth. This brief article does not seek to take their place. Rather we will try here to draw the reader's attention to some simple facts and illustrations which may contribute something to an overall understanding of the disease and give a framework for the material to follow.

Diabetes is defined as the state caused by insufficient available insulin.[2] Long ago it was noticed that there are two major forms of the disease. Various terms have been applied to these forms over the years: juvenile-onset and adult-onset; Type I and Type II; insulin dependent and non-insulin dependent. The latter terms are the ones in current use and reflect the present understanding of the condition. Insulin-dependent diabetes *tends* to have its onset among juveniles (hence the original term for it), but is now being called insulin dependent because that appears to be the salient characteristic: control cannot be achieved without daily injections of insulin. Non-insulin dependent diabetes, on the other hand, responds well to weight loss, diet, exercise, and oral medications. Since insulin-dependent diabetes is overwhelmingly the form we deal with among the blind, this article will confine itself to the insulin dependent form.

Insulin is a hormone produced in the pancreas. It must be present in order for sugar circulating in the blood to pass through the walls of the blood vessels and reach the body tissues. Since sugar is the body's fuel or energy supply, the breakdown in sugar metabolism which occurs in diabetes is life-threatening unless corrected.

The body is a self-regulating system, with constant back-and-forth communication going on among the various parts of the system. Normally, sugar and insulin exist in harmonious balance. When a low level of sugar exists in the body's tissues, the perception of a need for food arises. Appetite is stimulated; we feel hungry; we eat. As we do, the resulting rise in blood sugar stimulates the release of insulin. Interaction of insulin and blood sugar allows the sugar's passage into the tissues. Hunger is slaked; eating stops; excess sugar is transformed into fatty substances for storage. Insulin release gradually shuts down; the system returns to static equilibrium. This interaction between sugar and insulin can be roughly diagrammed as follows:

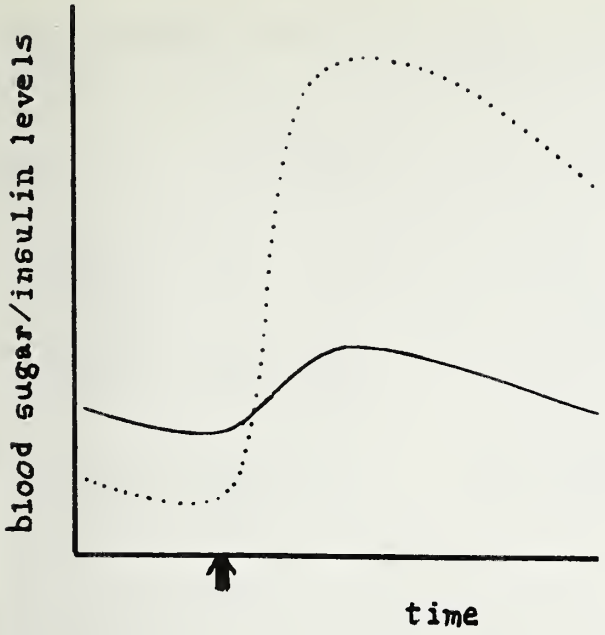


Figure 1 Insulin/blood sugar variations in a non-diabetic at meal time. Note the very great variation in insulin level.

—— blood sugar
···· pancreatic insulin
⬆ food intake

In diabetes the blood sugar/insulin mechanism is impaired, and MAXIMUM POSSIBLE release of insulin is still not enough. Sugar stays in the blood rather than moving from there into the tissues where it is needed. It accumulates, sometimes to enormously high levels. Figure 2 diagrams this situation, and shows an insufficient supply of pancreatic insulin, as do all subsequent illustrations in this article. Insufficient SUPPLY of insulin, however, is not always the problem (see note 3).

The very high level of blood sugar shown in Fig. 2 means that sugar which should be reaching the body tissues is not. Tissues which thus remain essentially unfed continue to create a state of hunger. The person goes on eating, therefore, well beyond the point where he would normally stop. This is the condition called "polyphagia," or excessive eating, and it represents a state where the body is quite literally starving in the midst of plenty.

If this condition of starvation despite eating goes on for long, the person may eventually lose consciousness, entering the state called "diabetic coma." In coma the body is metabolizing its fat reserves very quickly in a desperate attempt to feed itself. Fat, however, does not metabolize cleanly; byproducts called ketones are created and these, as they accumulate, act like strong poisons. They may eventually cause loss of consciousness; if the person remains untreated, death is a possibility.

The opposite condition from diabetic coma, insulin reaction, or hypoglycemia, may also cause a loss of consciousness. Where diabetic coma follows upon a state of abnormally HIGH blood sugar, insulin reaction, however, follows upon too LOW a level of blood sugar. Insuln reaction can result from a variety of factors, including not eating enough food to "balance" the injected insulin, a sudden surge of unusual physical activity, or taking too much insulin by mistake. Although loss of consciousness can take place with insulin reaction, it is seldom a life-threatening crisis, and ample opportunity generally exists for the person to treat the reaction with sugar-containing food. That is all that's necessry—eating something with quick-acting sugar in it. Orange juice is excellent.

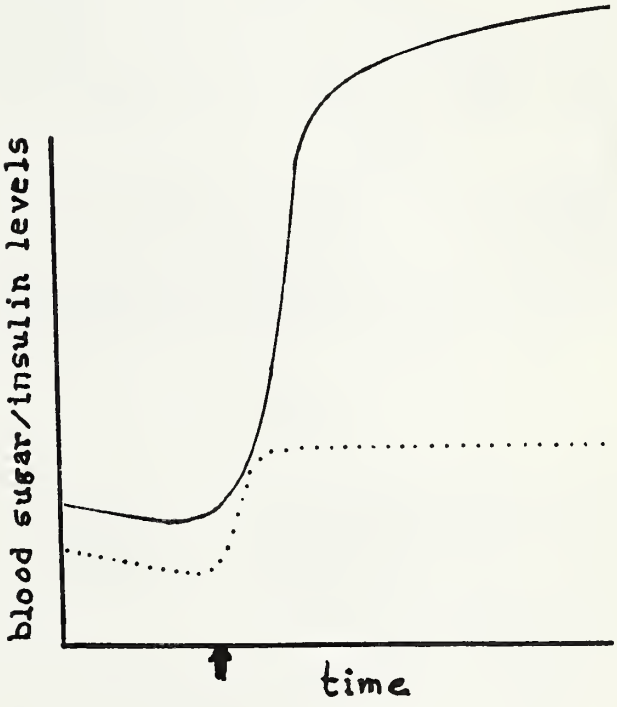


Figure 2 Insulin/blood sugar levels in an uncontrolled diabetic. Note that as blood sugar begins to rise with food intake, so does insulin. Insulin rise, however, stops far short of the level needed, and blood sugar continues to rise to a much higher than normal level.

—— blood sugar
···· pancreatic insulin
⬆ food intake

Fig. 3 shows a possible course of blood sugar variations over an entire day in the case of an uncontrolled diabetic. Note that every time food is eaten (arrows) blood sugar simply goes higher, and afterwards falls only very sluggishly. As long as SOME pancreatic insulin is available so that body tissues obtain SOME of their needed sugar, coma will generally not occur despite what may be extremely high blood sugar.

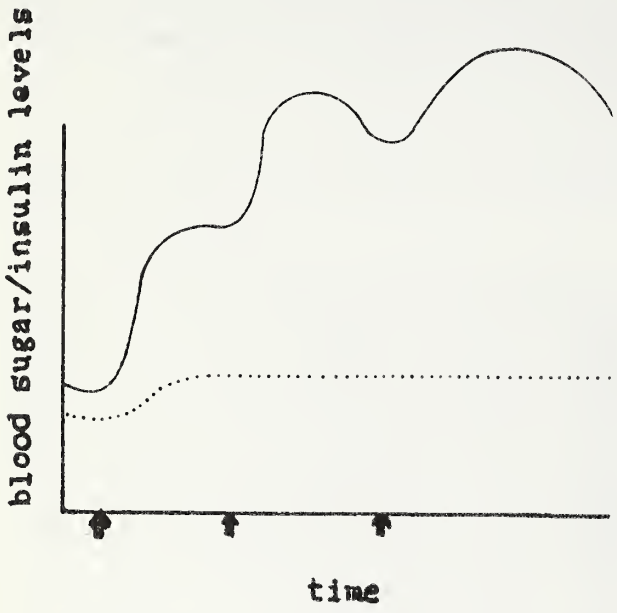


Figure 3 Possible blood sugar variations in an uncontrolled insulin-dependent diabetic. Note that an impaired pancreatic output is assumed here: food intake (arrows) has no effect on insulin supply, and blood sugars simply increase every time food is eaten.

—— blood sugar
.... pancreatic insulin
⬆ food intake

When insulin first became available in the 20s, there was only one form of it: what we now know as "regular." This fast-acting, short-duration insulin, essentially the same as the insulin released by the body's own pancreas, needed to be injected three or four times per day to achieve control. While this kept alive many people who would otherwise have died, and while diabetics could then begin to live essentially normal lives, many did not welcome the need to inject themselves several times a day. Beginning in the mid 30s, therefore, a succession of time-release insulins came onto the market attempting to address this problem. PZI, NPH, lente, and other slower-acting insulin seemingly solved a major problem for many diabetics by making it possible for them to inject only one daily dose, instead of four. Eventually many new types of insulin found their way to the market and enabled physicians to pick whatever type seemed best for individual patients. Table I summarizes the types commonly available at present.

TABLE I: Types of insulin currently available with their characteristics of action.

TYPE & APPEARANCE	*ONSET*	*PEAK*	*DURATION*
Fast-acting			
Regular (clear)	½ hr.	2-4 hr.	6-8 hr.
Semilente (cloudy)	1½ hr.	4-7 hr.	12-16 hr.
Intermediate			
Globin (clear)	2 hr.	10-14 hr.	14-22 hr.
NPH (cloudy)	1 hr.	10-16 hr.	18-30 hr.
Lente (cloudy)	1 hr.	10-16 hr.	18-30 hr.
Slow-acting			
Protamine Zinc/PZI (cloudy)	6 hr.	14-24 hr.	24-36 hr.
Ultralente (milky)	5 hr.	20-26 hr.	36+ hr.

There seems to have been a widespread impression from about the mid-30s until quite recently that these time-release insulins had solved the diabetic's problem for all intents and purposes. This impression apparently grew stronger when oral medications became available in the 50s. Suddenly many people could get by without shots at all. Evidence was slowly accumulating, however, that all was not well with this "single-dose" insulin therapy. Distressing numbers of diabetics were experiencing one or more of the complications of the disease: nerve, kidney, and eye damage. Those who believed that very strict control of blood sugar could help avoid these complications gradually won their case. A major factor in the development of complications was eventually recognized to be chronically high blood sugars. And to some extent the long-acting insulins were responsible. Consider Fig. 4.

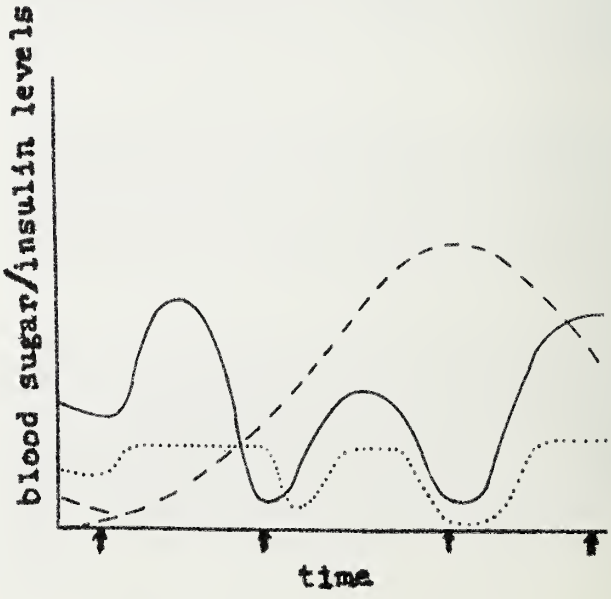


Figure 4 Effect of a single morning dose of long-acting (e.g., NPH) insulin on blood sugar in an insulin-dependent diabetic. Note the sharp rises in blood sugar in the morning (first arrow, breakfast) and evening (third arrow, supper; fourth arrow, bedtime snack).

—— blood sugar
.... pancreatic insulin
—— NPH insulin
⬆ food intake

In this illustration blood sugar is shown by the solid line and the impaired pancreatic insulin output by the dotted line as before. Injected time-release insulin (e.g., NPH) is shown by the dashed line. Note that even though the injection is taken before eating breakfast (the first arrow on the left), it does not begin acting to any significant extent until considerably later. After breakfast, therefore, blood sugar shoots up and doesn't fall until late in the morning. When it falls, it plunges, then stays reasonably low as it works efficiently with lunch (the second arrow). Supper—the third arrow—is generally eaten at a time when the injected insulin has begun to decline in activity. Since, in this country, supper tends to be the biggest meal of the day and to contain large amounts of protein and fat, this presents problems. The digestion of what tends to be a typical American supper will not be complete until after the injected insulin is nearly all used up. Digestion goes on, however, and blood sugar builds up. Adding to the problem still further is another American habit of nighttime snacking (the fourth arrow). Thus is is probably not at all uncommon for many diabetics to spend all night and a good part of the next morning with high blood sugars. And this despite frequent insulin reactions in the late morning and afternoon which incline them to think they're well controlled!! One physician has called this single-dose therapy, which was popular for decades, "...the worst thing that ever could have happened to diabetes...many juvenile diabetics who were on long-acting insulin for twenty years or more are now blind, sick, and dying."[4]

While single-dose therapy apparently is perfectly appropriate for some diabetics, apparently, for others it is a thing of the past. The original regimen from the 1920s of many daily injections of regular insulin has now, in effect, returned with the advent of the insulin pump. While its use is not yet widespread at this writing, it shows promise that it soon will be. The pump delivers its insulin not in a small number of large doses the way separate injections do, but in a large number of small doses, more like the way the pancreas functions. For many insulin dependent diabetics, the therapy that appears to best meet their needs is a multiple-dose regimen of mixed insulins. A typical daily routine of this type might involve a morning dose of, for example, NPH and Regular, and an evening dose of the same insulins in different amounts. The effects that can be achieved with this sort of therapy are shown in Fig. 5.

Here, the morning and late evening rises in blood sugar diagrammed in the previous figure are smoothed out by doses of regular insulin (dash/dotted line), with the longer-acting NPH dose (dashed line) taking care of the midday blood sugar. Blood sugar resulting from this therapy (solid line) shows gradual up and down waves staying more or less within normal limits. At any given moment the amount of insulin available for work is the SUM of the fractional doses of pancreatic, NPH and regular.

The problems facing the visually impaired diabetic, then, are how to measure accurately these often-complex doses of insulin, and how to monitor blood sugar levels. Technological advances, some very recent, have finally brought these problems within reach of a solution.

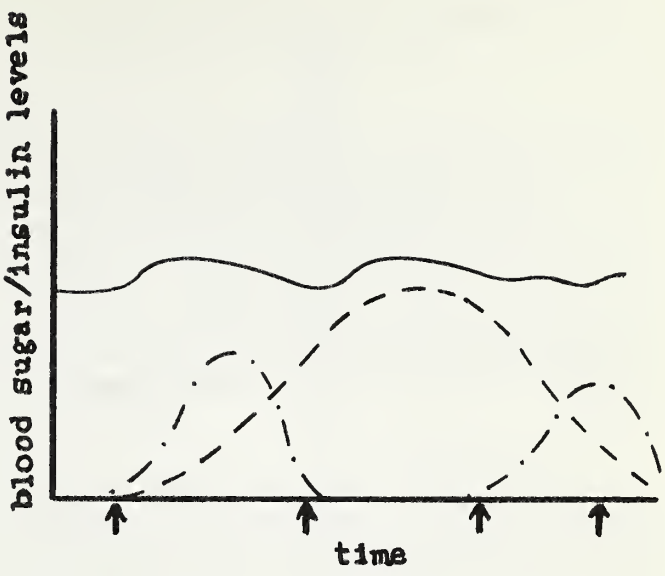


Figure 5 Example of multiple-dose therapy. Body's own pancreatic insulin is not shown for the sake of clarity. The doses of regular insulin before breakfast and again before supper fill in the gaps left by the NPH.

NOTES

[1]Cochran, H.A., Jr.; Marble, A.; Galloway, J.A. "Factors in the Survival of Patients with Insulin Requiring Diabetes for 50 Years," *Diabetes Care*, Vol. 2, No. 4, pp. 363-8, July-August, 1979.

[2]Krall, Leo. *Joslin Diabetes Manual*, Eleventh Edition. Philadelphia: Lea & Febiger, 1978, p. 5.

[3]In some cases the diabetic is observed to have a normal, or even above normal, supply of insulin. The problem appears to be that the body cannot use some of the insulin present in the blood. The reason for this is not fully understood.

[4]Goodman, Joseph. *Diabetes Without Fear*. New York: Avon, 1978. p. 28.

Basic Equipment for Insulin Administration

by

Ruth B. Carr, R.N.

In managing insulin administration, insulin and insulin syringes have served as basic equipment since 1922 when insulin, isolated from the pancreases of cattle or pigs, was first injected into humans for the treatment of diabetes mellitus. Even with recent developments in insulin delivery, such as the insulin pump, syringes and vials of pork or beef insulin remain the basic equipment. Much of the following discussion will prove familiar to those already acquainted with this basic equipment. However, it also contains a brief description of the "new insulins" which may bring to light some of the implications for their use in insulin administration with vision loss.

Commercial insulin is contained in a glass vial, permanently affixed with an aluminum cap, which is in turn centered by a tiny rubber diaphragm. The rubber diaphragm permits penetration by the hypodermic needle of the insulin syringe so that the insulin may be withdrawn and measured for injection. Insulin vials may have different shapes, but all insulin vials have the same spatial volume—10 cubic centimeters; they also contain the same volume of liquid—10 milliliters. For example, the Danish insulin Novo is sold in a tall, narrow vial in both Europe and the United States while American insulins (Lilly and Squibb) come in relatively squat vials; yet these vials all contain 10 milliliters of liquid in 10 cubic centimeters of space.

Even though all commercial insulin vials contain the same amount of liquid, concentrations of insulin within the total liquid vary. The insulin vial does not contain pure insulin but rather a portion of pure insulin, measured in "units," combined with other compounds in liquid form. Variations in concentration result from the fact that the amount of pure insulin combined with the other liquid in the vial can be increased or decreased compared to that other liquid. Therefore, all insulin vials are not only labeled to show the form of insulin contained (Regular, Semilente, Globin, NPH, Lente, PZI, or Ultralente); they are also labeled to indicate which of the three commercially available concentrations of insulin is contained.

Presently, the concentrations of insulin on the market are U-40, U-80, and U-100. The terms refer to the number of units of insulin incorporated in each milliliter of liquid: U-40 contains 40 units of insulin incorporated into each milliliter of total liquid in the vial; U-80 contains 80 units per milliliter; U-100, 100 units per milliliter. Clearly, the amount of insulin compared to the amount of liquid in which the insulin is mixed is greatest in a vial labeled U-100; in other words, U-100 insulin is the strongest commercially available insulin. In the near future, the only strength of commercially available insulin will be U-100; already U-80 insulin has been phased out.

The single available insulin strength should prove fortunate, since the availability of three different concentrations has been known to contribute to dosage error. Even though dosage error from this source may soon be a thing of the past, an explanation of it seems warranted since the problem could persist during the transition to the uniform concentration of U-100 insulin.

In order to understand the problem it is first necessary to know that each of the three concentrations has its own syringe, specially calibrated for that concentration only. To administer an accurate dose of insulin, *only* a U-100 syringe can be used with U-100 insulin; *only* a U-40 syringe can be used with U-40 insulin; and *only* a U-80 syringe was to be used with U-80 insulin. (As an alert, the different syringes are not only *labeled* according to concentration but also *color-coded:* a U-40 syringe is marked in red, U-80 in green, and U-100 in black.)

For an illustration of how dosage error can occur with the availability of various concentrations, consider how the standard 1 cubic centimeter syringe would be differently calibrated for U-100 insulin and for U-40 insulin. The figure below shows that the mark for a 20 unit dose of insulin is at the half-way point on the U-40 syringe, while on the U-100 syringe, the 20 unit mark is at a point 1/5 the total volume of the 1 cc syringe.

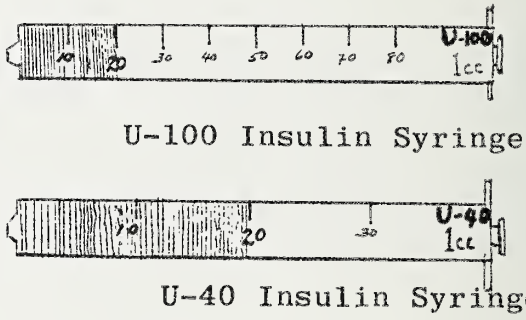


Figure 1

The relationship may be explained as follows: full, a 1 cc syringe of U-100 insulin would contain 100 units of insulin; to administer 20 units of insulin, then, the 1 cc syringe would be 1/5 full since 20 in 1/5 of 100. A 1 cc syringe full of U-40 insulin would contain only 40 units of insulin; thus a 20 unit dose of insulin using the U-40 concentration in a 1 cc syringe would be exactly 1/2 cc, making the syringe half-filled exactly. Now consider the possibilities of dosage error by mistakenly using a U-40 syringe to draw up U-100 insulin for an intended 20 unit dose. The 20 unit line on a 1 cc U-40 syringe would mark the halfway point, 1/2 cc; but 1/2 cc of U-100 insulin would be a dose of 50 units of insulin, more than half the intended dose of 20 units. Consequences of such a dosage errror are potentially serious. The need for using only the U-40 syringe with U-40 insulin and the U-100 syringe with U-100 insulin is obvious. Obvious as well is the point that uniformity of concentration will greatly reduce the possibility of these large dosage errors.

Other recent changes in insulin are worthy of note.

In 1980, drug companies introduced what has been called "the new insulin." Processed beef or pork insulin (as is the "old insulin"), this new highly purified insulin contains significantly fewer impurities, considered by many physicians to cause side effects in the diabetic, including allergic reactions—a hive-like rash at the injection site; insulin atropy—loss of fat at areas of injection resulting in indentations or hollows; and immunologic insulin resistances—a rare condition almost always due to insulin antibodies. It is hoped that the use of purer insulin will contribute to decreasing these specific complications and to decreasing the incidence of diseases of the eye and kidneys which people with diabetes can develop. It is hoped that a similar contribution will be made by a synthesized insulin with an amino acid chain identical to that of human insulin; it is still in research.

These potential benefits of the "new insulin" stem partly from the fact that highly purified insulin is absorbed more rapidly and in some cases more thoroughly. The new insulins can thus prove more effective in lowering blood glucose levels; one result of using these products can be a decrease in the insulin dose required for glycemic control. But there are also potential hazards. It should be noted that any dosage error on the side of an unintended increase could have more pronounced capacity to send blood sugar levels too low, since both the more purified insulins and U-100 insulin are in effect stronger. For these insulins the exactness of measurement is at least somewhat critical. This caution is offered to point out the need for the diabetic with vision loss to have accurate devices and reliable techniques for measuring the insulin dose.

The availability of a new insulin product with the trade name Mixtard has been reported recently; it is on the shelf in larger, urban pharmacies. The insulin is composed of a stable mixture of 30% rapid-acting insulin and 70% intermediate-acting insulin. This premixed combination has potential use for those whose daily insulin injection consists of a so-called mixed dose. (Refer to "Diabetes: Some Physiological Considerations for the Blind Person," page 5.) Since measuring a mixed dose is more complicated than drawing up a single insulin, and since the procedure is further complicated by vision loss, it is possible that this product could prove useful. However, there have been cautionary comments by health professionals, who point out that this product would not permit the effects of the insulin dose to be monitored in respect of its specific components nor to be adjusted specifically for any changes in health or exercise. Yet those who believe they might benefit from this product should consult their physician. (The product is distributed by Nordisk USA; 7315 Wisconsin Avenue, Suite 851-W; Bethesda, MD 20014.)

Of course, for any contemplated change in insulin, the physician should be consulted. Insulin may be purchased from the pharmacy without a prescription; however, the basic form and daily dose(s) of insulin are originally determined and thereafter monitored by the physician.

In contrast to insulin, which is a nonprescription drug, the other basic equipment of insulin administration, insulin syringes, must be prescribed by the physician. The prescription specifies the type of insulin syringe which the person may purchase at the pharmacy. Generally, the insulin syringe consists of a sharp, hollow needle, through which insulin is both withdrawn from the vial to fill the syringe barrel and then injected into the body; the barrel, marked and calibrated for units of insulin; the plunger, which ends in a disk. The disk at the end of the plunger becomes an important component in measuring insulin without sight; it is referred to in Fig. 2 (and throughout this issue) as the plunger base.

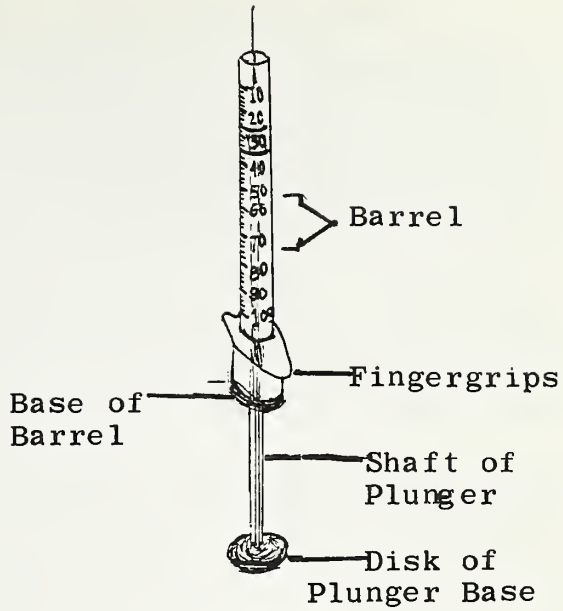


Figure 2

Before the introduction of plastic, disposable syringes, the basic device of insulin administration was the insulin syringe made of glass. But the glass syringes have several disadvantages. In glass syringes with removable needles, the hub, which holds the needle, creates so-called "dead-space"; here, up to 10 units of insulin may be hidden so that use of such syringes can result in dosage error. Other disadvantages include possible breakage, required sterilization with each use, and the eventual wearing away of the scale. Along with no possibility of dosage error from hidden insulin in the hub, plastic disposable syringes have other advantages: their fine-gauge needles are ultra-sharp for easy, comfortable insulin injection; they are pre-sterilized; and since they may be purchased in money-saving packs of quantities such as 10 or 100, they are economical. For these reasons, plastic disposable needles, for the majority of users, have replaced the glass insulin syringe.

Some gauges for measuring insulin without vision are designed for use with only certain brands and sizes of syringes. Thus it could be useful to know that for U-100 insulin there are two sizes of plastic disposable U-100 syringes and two sizes of reusable glass syringes. The two major manufacturers of insulin syringes, Becton-Dickinson and Monoject, each market a 1-cc disposable syringe and a .50-cc disposable plastic syringe; these syringes and their use with gauges for insulin measurement without vision are discussed in detail in "Measurement and Injection of Insulin by Blind or Visually Impaired Diabetics." Glass syringes also come in long and low dose sizes: 1-cc and .35-cc reusable syringes.

A final, useful product innovation requires mention: individually packaged alcohol wipes, for sterilizing the injection site, can replace the less convenient bottle of alcohol accompanied by cotton balls. In the East, Becton-Dickinson is a popular brand. Boxes contain 100 prepackaged alcohol wipes; price per box is currently less than $2.50.

This cursory description of the basic equipment used in insulin injection—forms of insulin and syringes—can, it is hoped, serve as background for the more particular explanations of "Devices for Insulin Administration with Vision Loss."

Insulin Gauges: Two Views

The two articles following present opposing perspectives on the evaluation and selection of insulin gauges. "Measuring and Injecting Insulin: Equipment and Techniques for Use by Blind or Visually Impaired Diabetics," by Joyce Schulz, R.N.,advocates the exclusive use of the Insulgage, which is commercially manufactured; the article discusses reasons for choosing this device over all others. The article not only details the advantages of the Insulgage, it outlines the disadvantages of homemade devices.

The second article, "Modifications on Insulin Techniques for the Visually Impaired or Blind Diabetic," by Alice Raftary, M.Ed., develops the argument on behalf of the homemade insulin gauge. In addition, instructions are provided for fabricating one from common, household materials, and suggestions for teaching the use of any device are given.

Though the two articles are opposed, both present equally valuable information, information which, we feel, can be useful regardless of one's agreement or lack of agreement with the overall point of view of either article. Our intention is *not* to encourage the reader to choose one approach over another. Rather, we juxtapose the articles in hope that their strong contrast will serve to highlight the kind and range of criteria used in evaluating and selecting insulin gauges for individual use.

Measuring and Injecting Insulin: Equipment and Techniques for Use by Blind or Visually Impaired Diabetics

by

Joyce Schulz, R.N.

Technique for Labeling Insulin

With vision loss, locating and identifying vials become problems for the diabetic; knowing the amount of insulin contained in the vial as successive doses are withdrawn becomes equally difficult.

A system for labeling insulin vials is needed if the individual is taking a mixed dose of insulin, i.e., a short-acting insulin such as Regular or Semi-Lente. The simplest and easiest way of identifying the specific type of insulin is to stretch a rubber band around the longer-lasting vial. Another method used by some is to braille an R on tape and tape it to the Regular insulin vial. A variety of methods of marking can be used; but whatever method is chosen, it should make sense to the person and should be consistent. For instance, the longer-lasting insulin should not be labeled one time, then the shorter-acting insulin the next time.

To determine when an insulin vial is empty, the visually impaired diabetic must first of all determine the number of safe doses available in a vial and then have a system for keeping a record of the number of doses injected. A standard vial has 10 cc of insulin solution—whatever the type, strength, or brand. If U-100 insulin is being used, this would therefore equal 1000 units of insulin. For safety's sake, it is best to allow approximately 60 units of insulin to remain in the vial or 0.6 cc of solution. This will insure that the tip of the needle will always be in some solution. Without the amount of remaining insulin solution, the tip of the needle can protrude into air within the vial when it is inverted for withdrawing the insulin. The individual should therefore assume that a new vial of U-100 insulin has only 9.4 cc of safely usable insulin or 940 units. To determine the number of safe doses in the vial, the person must divide 940 by his dosage. For example, if a person's dose is 30 units, he or she can count on 31 safe doses since 31 is the result of dividing 940 units by 30—the number of units of each individual dose. When the number of safe doses has been withdrawn, the vial can be discarded or set aside until such time as a sighted person is available to withdraw the remaining insulin and insert it into a new vial.

A system to record accurately the number of doses administered is also a necessity. The particular system used is not as important in itself as the necessity that whatever system is used make sense to the person. One system is to count out the number of syringes equal to the number of safe doses in the vial. When the syringes are used up, the vial of insulin would also be finished. Small-sized counters are another system that some people find convenient. For example, a number of marbles, buttons, or toothpicks equal to the number of doses can be placed in a container; when each dose is administered, one object is taken from the container so that the empty container will signify that all safe doses have been used. Likewise, straight pins or safety pins in a number equal to the safe doses may be first stuck into a strip of cloth and then removed, one for each dose administered. Or pills or vitamins can be counted out, one for each dose, and swallowed before each shot; for those who take these medications daily, this system works well. Some visually impaired and blind diabetics prefer to keep a daily written or braille record of their insulin status and find this means most accurate.

Sterilizing Equipment and Inserting Needle into Vial

The widespread use of disposable needles and syringes has done away with the need for sterilizing equipment and such techniques as soaking syringes in alcohol and boiling needles. Yet for the visually impaired diabetic, inserting the needle directly into the insulin vial rubber stopper without contaminating the needle remains a problem of insulin administration. Contamination usually occurs by hitting the metal ring surrounding the rubber stopper with the needle. For many years a metal funnel-shaped needle guide was the only device available to help direct the needle into the rubber stopper. However, many people can still encounter problems with the needle hitting the side of the needle guide; if the needle guide is not itself sterile, the needle can become contaminated.

The Holdease Needle Guide and Syringe/Vial Holder, manufactured by Meditec, Inc., is a device available for solving this problem. The insulin vial snaps in one end, and the insulin syringe in the other so that the syringe needle slides directly into the insulin vial through the rubber stopper. There is no other material in its path to cause contamination.

Drawing and Measuring Insulin

Over the past several years a variety of devices to assist in self-measurement of insulin has been marketed; these devices vary with respect to safety and accuracy. Before determining which aid to select, some consideration needs to be given to the suitability of using disposable insulin syringes with any kind of volume regulator or precalibrated loading device.

There are various brands of disposable syringes—the three major brands being B-D, Monoject, and Jelco. Each of these manufacturers makes insulin syringes in several types—long, short, attached needle, lo-dose, etc. Each brand/type is different in its exact shape and dimensions.

During production the syringe manufacturers have careful control only over certain syringe dimensions such as the barrel of the syringe. A consistent dimension to each barrel of the syringe is necessary for accuracy when it is filled visually in the traditional method. Other parts of the syringe, specifically the plunger, play no part in the accuracy of the dosage measured and withdrawn using sight. These are of no concern to the manufacturers and are not necessarily checked. However, when a volume regulator such as Dos-Aid or pre-calibrated loading device such as the Insulgage loading gauge is used to measure insulin, the length of the plunger becomes equally important for an accurate dosage. It should be understood that only those brand/types of disposable syringes whose production characteristics are such that maximum variations of those parts affecting accuracy are sufficiently small should be selected for use with pre-calibrated or volume-regulating devices.

According to information from the manufacturer, the Monoject long 501 syringe is definitely not suitable and should not be used with any type of device.

Varying dimensions for the syringe plungers of different manufacturers can also make for hazards with homemade gadgets and devices commercially available. One of the generally unrecognized hazards with homemade gadgets and many of the volume regulators on the market is the capability of using various disposable syringes in the same device. Medication errors can result if the regulator has been pre-set or pre-cut for one brand/type of syringe and another brand/type of syringe is used. This can happen frequently because of special sales on syringes. The person can change his or her brand of syringe for economic reasons alone without foreseeing other consequences. Unless the person has been instructed and cautioned about the variances in brand/types of syringes, he or she may unknowingly measure up an amount of insulin with a device that has been pre-set to measure the specific dosage with another brand/type of syringe.

When selecting a particular device to aid in self-measurement of insulin, the essential aspects to consider are:

i. Is it safe? Is it possible to interchange various brand/types of syringes in it?

ii. Is it accurate?

iii. Can it be read by the visually impaired or blind diabetic so that he/she is not tied in to a sighted person for pre-setting the device each time his/her dosage is altered?

iv. Can a mixed dose be safely and accurately measured?

v. Is it simple and compact?

The one device on the market at the present time that meets all these needs is the Insulgage loading gauge manufactured by Meditec, Inc., Englewood, Colorado. My experience suggests that the Insulgage loading gauge in combination with the Holdease Needle Guide and Syringe/Vial Holder provides the visually impaired or blind diabetic with a safe, accurate means of measuring his or her insulin.

When actually drawing and measuring insulin, a concern many visually impaired diabetics and some professionals have is the possibility of drawing and injecting a large amount of air instead of insulin. Consistent use of proper techniques for filling the syringes assures safety in this area. There is also less chance of large bubbles being drawn up by using disposable syringes with attached needles. This is because of reduction of dead air since the hub of the needle has been eliminated. Reassurance should also be given that a large air bubble injected sub-cutaneously will not cause any damage, the only concern being that a large bubble of air will replace units of insulin, producing a medication error. A small pinpoint bubble of air is of no concern.

Specific instructions for drawing and measuring insulin with use of the Insulgage loading gauge and Holdease are as follows:

Dose of Single Insulin

(1) Rotate insulin vial between palms of hands to mix insulin.

(2) Wipe rubber stopper of insulin vial with alcohol wipe.

(3) Insert vial into Holdease—snap vial into large opening and slide inward until metal cap is against center divider.

(4) Insert syringe in Holdease—grip syringe near needle end, twist off needle guard and press syringe into clip through top opening.

(5) Pressurize vial—to correctly pressurize vial an amount of air equal to the insulin dose needs to be injected into the vial before solution is withdrawn. To achieve this, hold the gauge so that the slotted end is down. Place the slot in the gauge over the head of the plunger. Pull down with the gauge to withdraw the plunger, while pressing it lightly against the syringe. Remove gauge. Slide syringe lightly toward vial until stopped. Position holder with vial down and insert air into vial.

(6) Fill syringe—turn holder to upright position with vial on top. Grip syringe any comfortable way and pull plunger back about one finger's width—then push insulin back into vial. Repeat this procedure two more times—this is done to clear bubbles. With plunger pushed all the way in again, place the slot in the gauge over the head of the plunger. Pull down with the gauge to withdraw the plunger while pressing it lightly against the syringe. Pull the plunger out until the gauge fits between the plunger head and the end of the syringe. You can feel the gauge slipping in to fit over the disk plunger base. Then pull the plunger out a bit more—about 2 or 3 units. Now push the plunger in with the gauge as far as it will go. Note: In this final correctly loaded position, the disk of the plunger base should be firmly against the back of the slot in the gauge.

(7) Slip the gauge off the syringe. Slide syringe in clip until needle is completely out of vial. Turn needle end up to lift syringe out of clip.

Mixed Dose of Two Insulins

Two gauges are needed: see step (4) below.

(1) Pressurize vial of longer-acting type of insulin. Follow steps 1 through 3 for *Dose of Single Insulin* above; then slide needle out of vial without removing syringe. Slide vial of insulin out of holder.

(2) Fill syringe with shorter-acting type of insulin. Insert vial of shorter-acting insulin, pressurize it (step 5) and fill syringe (step 6).

(3) Change insulin vials in holder. Slide needle out of vial but leave syringe in clip. Slide out vial of short-acting insulin and insert (pressurized) vial of longer-acting insulin.

(4) Fill syringe with second type of insulin. Slide needle into vial and fill to prescribed total dosage (step 6). Note: The size of Insulgage used for the longer-acting insulin should be equal to the total insulin dosage since it will be added to the short-acting insulin already in the syringe, e.g., 4 units Regular insulin plus 16 units NPH insulin = 4 unit Regular gauge plus 20 unit gauge for NPH insulin.

(5) Remove syringe.



Injecting the Insulin

Insulin injection techniques are the same for the visually impaired diabetic as they are for the sighted diabetic with two exceptions. When injecting insulin, the person should stabilize the hand holding the syringe by placing the little finger against the skin as a point of reference and inserting the needle at the skin surface. This differs from the sighted technique of inserting the needle with a jab like throwing a dart.

After inserting the needle it is not necessary to pull back on the plunger to check for blood. Reassurance may be needed that this in no way endangers the person. This may be a step that the person has previously been taught is essential. When using proper technique and insulin injection sites, the probability of injecting into a blood vessel is remote. If this should occur, the only result would be a quicker absorption of the insulin.

Injection Technique:

(1) Wipe off the injection site with alcohol wipe.

(2) Pinch up the area where the needle will be inserted between thumb and fingers of free hand. Pinching up the area will pull the fat away from the muscle and the injection will then be into the fat. To pinch up the area on the arm, press the back of the upper arm against a chair back or corner of wall. Roll the arm down.

(3) Insert the needle as instructed above.

(4) The skin may also be spread between the fingers and needle inserted straight up and down in areas where there is more fat.

(5) Let go of the area and push in plunger.

(6) Place the alcohol wipe over the needle and pull needle out. Press wipe over the area for a few seconds.

Locating and Rotating Sites for Injection

Insulin may be injected in any area that has a thick layer of fat and is free from large blood vessels and nerve. Areas that may be safely used are the upper arms, thighs, buttocks, and abdomen. To locate the areas that are safe for injection of insulin, the following procedures may be used by the visually impaired diabetic.

To locate the injection site on the upper arm, place the heel of the right hand where the left arm joins the shoulder. With the right hand thus anchored, extend the middle finger to draw an imaginary line across the top of the upper arm. Then place the right hand, heel down, on the left elbow, extend the middle finger, and draw an imaginary line across the left upper arm with the right middle finger. The middle and outer area of the upper arm between these two imaginary lines may serve as an injection site. To use the right upper arm, reverse left and right in the foregoing instructions.

To locate the injection site on the thigh, place the left hand, heel down, on the left hip bone and draw a line below the point where the middle finger rests. Then place the left hand at the bottom of the thigh with the middle finger just touching the knee cap; use the fingers of the right hand to draw a line across the thigh where the heel of the left hand rests. Use the middle and outer area of the thigh between the two imaginary lines for insulin injection. To use the right thigh, reverse left and right in the foregoing instructions.

To locate injection sites on the abdomen, place the heels of the hands on the lower ribs and draw a line using the middle fingers. Place hands on hip bones and draw a similar line. Use the area between these two imaginary lines as far as you can pinch up fat. Do not use the belt line or a one-inch area around the navel. If there is enough fat to pinch up, the buttocks may also be used.

It is important to rotate or alternate these injection sites from dose to dose, day to day. If one site is used repeatedly without days intervening between injections, then the fatty tissue will change in ways that can interfere with absorption of the insulin. On the other hand, if a completely unused site is suddenly used, then the insulin may be absorbed too well, too quickly, causing insulin reaction. Site rotation is important in the prevention of both these problems.

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Modifications on Insulin Techniques for the Visually Impaired or Blind Diabetic

by

Alice Raftary, M.Ed.

A simple, homemade volume regulator for measuring insulin can be constructed from a row of staples; for the diabetic who is suffering a visual loss, even temporarily, it can provide a means of coping with a lower level of acuity. The templet measurement technique ought to be introduced at the time of initial visual impairment, since the procedure is most easily learned when useable vision remains. Not only the measuring technique can be learned at this time, but also the method for constructing the templet. These techniques, once learned, become a part of motor memory and can be used in any case of vision impairment—even total blindness. The templet technique is thus to be preferred to the use of magnifiers because it can provide a permanent solution to the problem of accuracy in insulin draw.

Making the Templet

Simply and economically, a templet of refill staples and a soft adhesive tape (masking, mystic, surgical, etc.) can be made; made according to the following procedure, it will be accurate. Set the insulin dose on the syringe. Break off a length of staples slightly longer than the length of exposed plunger. Remove a few staples at a time, until the length of staples fits snugly between the exposed plunger end and the syringe barrel. Wrap the length of staples, including one of the angles, with tape to insure permanence and rigidity. Check the accuracy of the templet.

Advantages of the Staple Templet

The chief advantage of this homemade device is its ready availability. If there is a prescription change or a templet has been lost, a homemade templet can be made on the spot. This templet is easy to construct and the inexpensive materials are found in most homes and office settings. For example, if one needs a template made when in a motel, the length of staples and the few inches of tape would be freely provided by the desk clerk. On the other hand, the commercial aids are infrequently available at pharmacies and mail-orders may require 6-8 weeks for delivery. Although their ready availability, freedom from cost, and ease of assembly make staples the preferred material for a homemade templet, other materials, e.g. plastic or metal tubing, will also work.

Important Note

A new templet is necessary when there is a change in the amount or type of insulin prescribed; when there is a change in the manufacture or model of the syringe to be used by the patient; if it becomes raggedy after much use.

Disposable syringes should be used since the plunger of the plastic disposable syringe is easier to control.

Technique for Drawing Up Insulin

—Assemble all equipment on a small, shallow tray or box.

—Mix insulin by rolling the vial gently between the palms of the hands.

—Cleanse the vial cap with an alcohol swab. Return swab to tray.

—Uncover the needle. *After the needle is uncovered, the syringe does not leave the hands until it is ready for disposal.*

In the dominant hand, hold the syringe near the needle hub as a pencil. With the other hand, hold the insulin vial firmly upright on the table, thumb and forefinger at the neck of the vial.

As the needle is brought to rest across the vial top, the free fingers of the hand holding the syringe will help locate the vial and steady the hand.

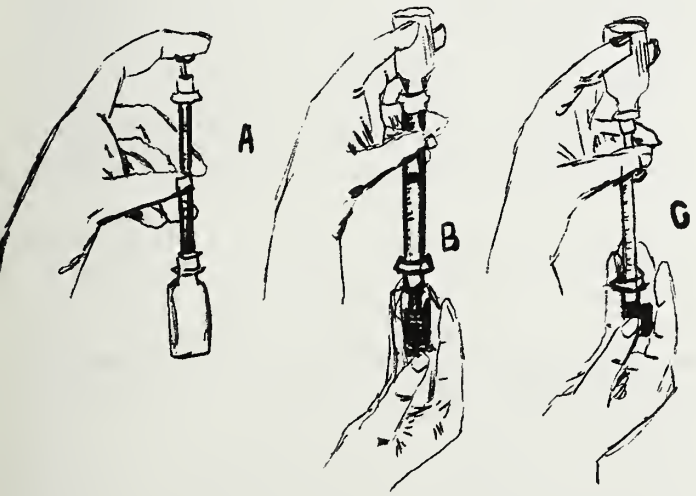
Draw the needle across the vial cap. There will be a small "click" as the tip comes off the metal ring onto the rubber. Rotate the syringe to the perpendicular and insert it into the vial. If the needle is not on the rubber, there will be resistance. Don't force it, as the needle will bend. Start over.

—*Draw air into the syringe to the amount of the insulin dose by placing the templet along the shaft of the plunger and seating it snugly. Remove the templet and return it to the tray for easy relocation.*

—*With the vial resting firmly upright on the table, insert the needle. Expel the air into the vial.*

—*Slowly invert the vial with syringe attached. Hold it in a vertical position in one hand, leaving the dominant hand free to manipulate the plunger. Keep the equipment in a vertical position until the insulin is fully drawn. (Figs. B and C)*

—*With the dominant hand, pull out the plunger approximately 1/4" farther than necessary to insert the templet. Position the templet along the plunger shaft. (Fig. B) Push the plunger up so that the templet is seated. The insulin in the syringe is the dosage prescribed. (Fig. C)*



Additional Procedures for Two Insulins in a Single Dose

—Make two templets. One templet should be made to measure units drawn first. The other templet is the length of the combined dose. Be sure the insulins can be differentiated tactually (e.g., a rubber band around one of the vials).

—Draw up air with the longer templet to the combined dose.

—Remove templet and insert needle in vial of insulin to be drawn second.

—Place the small templet along the shaft of the plunger, and expel air into the vial until the small templet is seated.

—Withdraw syringe with templet still in place.

—Insert needle into the vial of insulin to be drawn first.

—Remove templet and expel air.

—Draw up the first part of the dose, following the procedure described in the previous section.

—Remove the needle from the vial, keeping the templet in place. Return the vial to the tray.

—Keeping the templet in place, insert the needle into the second vial.

—Invert the vial, and remove the small templet, drawing up a few units.

—Set the longer templet with the end resting on the end of the plunger, and carefully pull out the plunger, steadying the templet with the thumb until the templet drops into place and is seated. (Fig. C) Do not expel any insulin back into the second vial.

—Withdraw the syringe from the vial with templet in place. If extra insulin was drawn, discard it by seating the templet.

—Remove the templet and proceed with injection.

Instructing the Blind Patient

CAUTION! This is not a complete insulin instruction. It is concerned with technique modification and presumes a considerable knowledge of diabetes and insulin management. Persons with a non-medical background should use this article with the consultation of an experienced nurse or clinician. Improper interpretation of insulin prescription can have serious consequences. It should be noted that insulin is a potentially lethal drug. In instructing the blind diabetic in the use of devices for nonvisual measurement of insulin, remember to consider his or her physical tolerance, mental alertness, etc.

ORGANIZE instructions and instructional materials thoroughly. Be consistent. Repeat instructions in the same terms and sequence. Be sure the patient understands the terminology you are using.

POSITION the patient. If the task to be learned is one he or she performed before, have the patient assume the familiar and comfortable position. If it is a new task, put the person in the posture best for him or her.

PROVIDE AMPLE TIME for the person to become familiar with the task. Have the person examine and manipulate thoroughly all materials and equipment used. Let the person observe and examine your demonstration tactually as you give verbal instruction.

INDIVIDUALIZE INSTRUCTION. If the person has had previous experience with the skill being taught, allow him or her to demonstrate present proficiency. Begin instruction at this level.

Experiment with possible adaptations and alternatives, e.g., other techniques of manipulation and/or use of assistive devices. Use short, frequent instruction periods. Do not rush instruction. Make sure that each step of the procedure is mastered before going on to the next step. Supervise the practice until you are reasonably sure that the patient will not be practicing an incorrect technique.

BE PRAGMATIC in your evaluation. Accomplishing the task is more important than the style of performance. Give plenty of positive reinforcement. (Nothing succeeds like success!) At the same time, be realistic and don't try to "con" the person.

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With the use of sight, the insulin dose is measured by reading the scale printed on the syringe barrel. The insulin vial is first pressurized so that the liquid will flow easily and smoothly when it is withdrawn into the syringe. To then withdraw the proper amount of insulin, the pressurized vial, with the syringe inserted, is inverted, the syringe plunger is pulled halfway down the syringe barrel, and a column of insulin half the length of the syringe is drawn up. To measure the exact amount for a particular dose, the plunger is then pushed in expelling excess insulin until the plunger head is observed to align with the scale marking for the desired dose.

Mechanical characteristics of the syringe itself, rather than the printed scale, can be used to accomplish the same procedure. The distance between the plunger base, pulled out from the barrel, and some fixed point on the barrel itself, for instance its base, will stay constant for any specific dose drawn. (Refer to Figure 2 on page 7.) Devices for nonvisual measurement of insulin all work according to this principle: that is, insulin gauges, including those volume regulators built into the syringe itself, control the distance between the base of the syringe barrel and the base of the plunger—they fix the distance to which the plunger can be pushed or pulled, or they tactually or aurally indicate it. The height of any given column of insulin drawn up in a specific number of units will always correspond to a fixed distance between the plunger base and syringe base of a particular syringe or of a syringe with the *exact* dimensions—thickness of plunger base, etc. As Joyce Schulz points out, it is thus crucial always to use the same brand and model of syringe with a particular preset insulin gauge and to use only those brands and models of syringes in which dimensions are consistent from syringe to syringe.

Devices called needle guides can be equally essential in nonvisual insulin administration. Needle guides, as the name suggests, aid in centering the hypodermic needle on the vial's rubber stopper. Some needle guides also hold the vial and keep it steady.

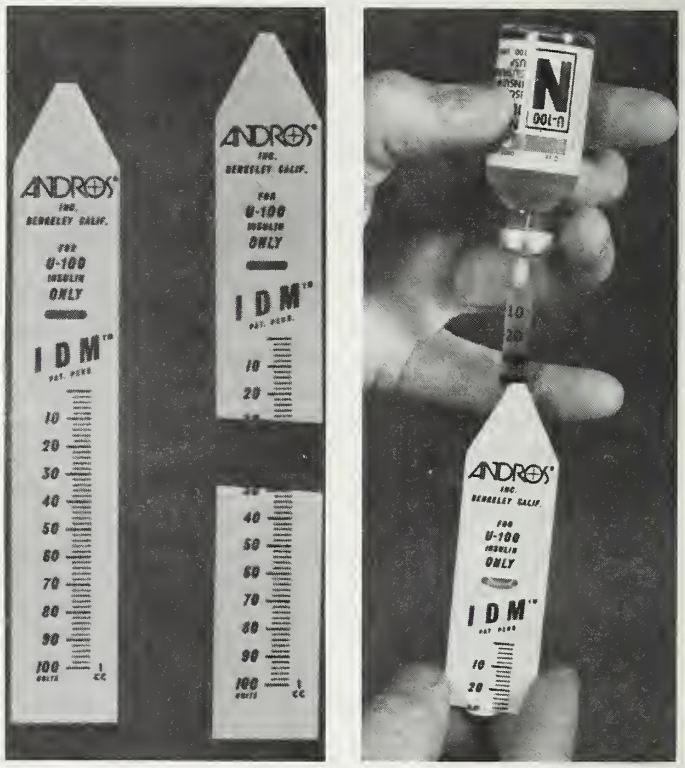
Magnifiers constitute another category of devices for insulin administration with vision loss. For some persons with remaining useable vision, hand or spectacle magnifiers can aid in both tasks—guiding the needle to the vial stopper and measuring the insulin dose in the syringe. While these magnifiers make all features of syringe and vial appear larger, magnifiers designed to attach to the syringe itself enlarge the lines and numbers of the unit scale only.

From our survey of rehabilitation and health professionals and of consumers, all of these devices would appear to have potential advantages and limitations. The appropriateness of any device ultimately depends on the particulars of a person's individual characteristics and circumstances of daily life. The following guide compiles descriptions of the devices with comments on their utility under various conditions.

For participating in the survey, we would like to thank in particular Ruth B. Carr, Richard M. Connors, Davide Marletta, Laura V. Marletta, Judith W. Oehler, Alice Raftary, Joyce Schultz, and Allene R. VanSon. We are also most grateful to Brian Collins of Toronto, Canada, for supplying not only valuable information but also some actual equipment purchased from the Canadian National Institute for the Blind. While some comments are not attributed to individuals, lengthier discussions bear the initials of their principal author.

Insulin Gauges

Andros IDM



Measures 1″ x 4″. Made of stiff but thin and flexible sheet plastic. Unit scale is printed the length of the gauge. Above unit scale is cut a slot for syringe's fingergrips. A nurse or physician is to cut the gauge at the unit line corresponding to the prescribed insulin dose. During use, the fingergrips of the syringe fit into the slot with the needle extending upward and over the gauge's arrow-shaped head. Then the plunger is pulled until the disk of the plunger base snaps past the edge of the gauge, already cut for the desired dose. The plunger is then pushed in until the disk is in contact with the edge of the gauge to set the dosage.

Essential features: For use with Becton-Dickinson's #8409 Plastipak U-100 disposable syringes *only*. Unit scale calibrated in 2-unit gradations.

Advantages: Scale is precisely calibrated and consistent for individual gauges. The slot for syringe's fingergrips is precision cut to admit only the Becton-Dickinson #8409 Plastipak U-100 disposable syringe, for which the scale is calibrated—an effective safety precaution.

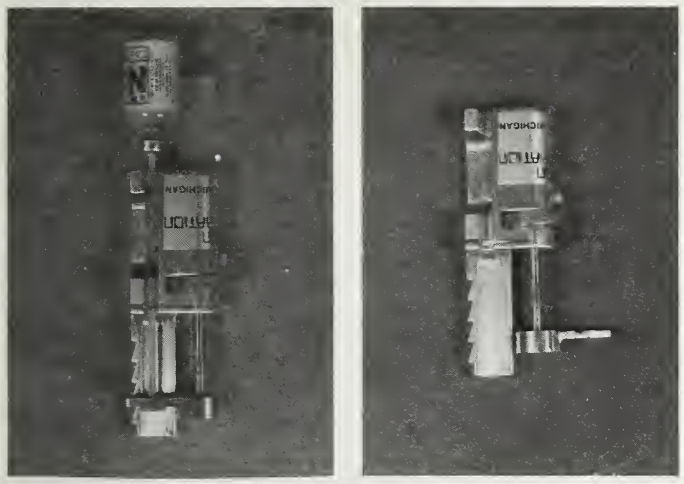
Disadvantages: Flimsy. Can be difficult to hold firmly while withdrawing plunger of syringe—also difficult to teach because there is no clear-cut step-by-step technique for solving this problem. (J.W.O.) Flexibility can cause dose to be off by several units if force is applied during measurement; ability to bend inspires mistrust. (B.C.) Can be quite difficult to cut evenly at proper unit line. Cannot be set by the visually impaired user. The 2-unit gradations of the scale make measuring odd numbered doses less accurate. Single IDM cannot be used to measure mixed doses or to change dose.

Solution: Several gauges may be ordered: one for intermediate acting insulin, one for combined dose of intermediate and regular insulin to accomplish mixed dosage. Others may be ordered and cut for predicted dose changes.

Independent Living Aids
11 Commercial Court
Plainview, NY 11803

Price: $3.50
Order No.: 074300

Cyberon Adjustable Gauging Device



Measures approximately 6″ x 2″. Prototype machined from metal alloy. Production models will probably be injection molded plastic. The central body of the device is basically rectangular with a "tongue" extending from body at lower left corner. A trough is machined on face along left edge above "tongue." This trough will accept the syringe barrel while a horizontal slot at base of trough will hold the syringe fingergrips.

During use, the syringe is held in trough by friction. The plunger extends from body of the gauge and down the "tongue." A threaded rod screws into base and through a thumbwheel fitted into body of gauge; at the base of this rod is a metal "flipper" that can be swiveled to hook over plunger shaft so that outside edge of flipper pushes against inside edge of the plunger base disk. Each full revolution of the thumbwheel moves the "flipper" a distance equivalent to one unit on the syringe. The thumbwheel is indexed so that it clicks each time a revolution is completed in the forward direction that increases dosage. In the reverse direction, no click is audible, but a resistance is felt when the revolution is completed. Notches cut into the left side of the "tongue" indicate tactually 10-unit increments as a guide to the dosage. The gauge may be preset before the needle is inserted into the vial; the plunger is pulled to draw up excess insulin, then pushed to expel excess back into vial until "flipper" stops movement at correct dose. Or the gauge may be set with the needle already inserted, a procedure which will pull out the plunger, filling the syringe gradually, one unit per turn of the thumbwheel. Because dosage setting is thus adjustable independently by user at time of use, device is suitable for measuring mixed doses of insulin. The physical design of the gauge allows the syringe to remain in the gauging unit while injection is administered.

A patent application has been filed on this device, and Cyberon Corporation is presently exploring a variety of methods for manufacturing, marketig, and/or licensing this device. (For further information, contact Eliot Friedman, President of Cyberon Corporation, at the address below.)

Essential features: Prototype has been machined in two models: one to fit B-D Lo-Dose U-100 syringe, one to fit Monoject Lo-Dose U-100 syringe. In production, one model may be developed to accept either brand of disposable 1/2 cc syringe.

Advantages: Accurate. Beautifully machined. Ingenious and functional design.

Disadvantages: Setting the device can seem to require a good deal of time—30 seconds to several minutes per injection. During this time, holding insulin vial steady can be a problem. Count of clicks can be lost without high degree of concentration, good hearing, tactual sensitivity.

Cyberon Corporation
1175 Wendy Road
Ann Arbor, MI 48103
(313) 994-0326

Dos-Aid Syringe Filling Device



Measures 7″ x 1 1/2″. Made of rigid plastic. The two-inch cradle at top holds insulin vial; attached by screws it is allowed to slide on main body of guide. The vial cradle is moved up or down to lengthen or shorten distance between insulin vial and syringe to adjust to specific syringe type. The middle consists of two blocks, side by side, with a vertical gap between them to hold the syringe barrel. Amount of separation adjusts to fit girth of specific syringe type. At the base of these blocks is a slot for the syringe's fingergrips. The bottom third of the device holds a block which can slide forward or back to set the guide for the desired insulin dose. To set, the syringe barrel rests in the syringe trough between two middle blocks with fingergrips in the fingergrip slots. The plunger is withdrawn to desired dose and the plunger stop (block) is pushed to rest against the disk of the plunger base. The screws are tightened. Now the block controls the distance to which the syringe plunger can be pulled and thus determines the insulin dose which can be drawn up. To be set by a health professional.

Essential features: Designed to measure single dose only. Designed for use with 1 cc syringes only; cannot be used with lo-dose syringes since even the closest position of vial cradle is still too distant for any lo-dose syringe to reach.

Advantages: Convenience of having vial holder, needle guide, and insulin gauge in one unit. Easy to locate and handle because of large size. Useful for limited dexterity such as that caused by one-handedness or severe neuropathy. (R.B.C.)

Disadvantages: Bulk makes it cumbersome to carry around daily. Screws can loosen and settings can change without user's awareness. Must be preset by sighted help. The use of various brands/types of syringes is not absolutely prevented. The slot for syringe fingergrips is wide enough to accommodate any brand or type of syringe, potentially causing dosage error. Dosage error can also result from ability of syringe to jostle in trough. (J.N.S.)

Solutions: Engineers at the American Foundation for the Blind are presently working on an improved Dos-Aid. Now in prototype, the device would have the capability of measuring a mixed dose, indicating automatically when the insulin vial is empty, and permitting the insulin dose setting to be varied at will.

American Foundation for the Blind
Consumer Products Department
15 West 16th Street
New York, NY 10011

Price: $17.95
Order No.: NES-563

Centre Louis-Hebert Inc.
1270 Chemin Ste-Foy (4e Etage)
Quebec - G1S 2M4
Tel.: (418) 687-3470

Insulgage Loading Gauge





Measures 1 5/8″ in width. A 1/4″ thick rectangle, the height varies according to insulin dose for which the gauge is calibrated. High quality, durableplastic. Individual gauges are cut to length by manufacturer; the length corresponds to distance between the base of syringe plunger and the base of syringe barrel for a specific insulin dose drawn by a Becton-Dickinson Plastipak #8409 Long U 100 Syringe only. Gauges are produced in sizes ranging from 4 units U-100 insulin to 85 units; within this range, sizes are available only for even numbered units or for numbers of units which are multiples of 5. For mixed doses and anticipated dose changes, a variety of gauges may be ordered.

During use, the shaft of the syringe plunger fits into the hollowed-out vertical edge, and the disk of the plunger base slips into the horizontal notch. (Refer to "Measuring and Injecting Insulin" on page of this issue.). Body of gauge contoured for firm grasp. Face of gauge labeled with insulin dose, choice of media: black large print numerals; 1/2″ tall, raised plastic numbers; or braille. Both braille and raised numbers are also available.

Essential features: For use with a Becton-Dickinson Plastipak #8409 Long U-100 syringe only.

Advantages: Normal hand-motor control is adequate dexterity for use; neuropathy does not significantly interfere with technique. Mixed doses can be measured with use of 2 gauges—one for short-acting insulin and one for combined dose of short-acting insulin and intermediate-acting insulin. Simplicity and sturdiness of device makes practical the techniques of injecting regular insulin before each meal for tight control. (D.M.) (J.W.O.)

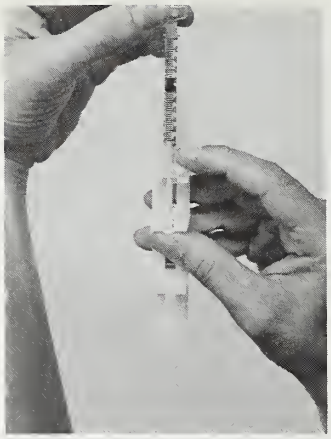
Disadvantages: Some consumers report long waits for order to be filled. Device has a 2-unit play in the notch where plunger base rests, which can cause a 2-unit dosage error if care is not taken to perform technique of measurement consistently.

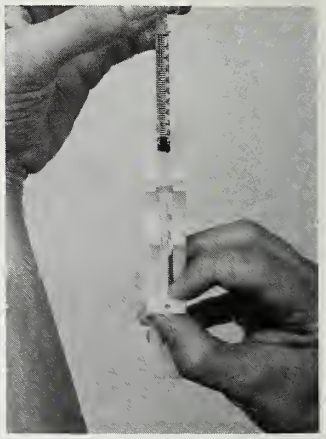
Solutions: Dosage error may be avoided by consistently pulling plunger out farther than necessary, inserting plunger base into notch, plunger shaft into hollowed edge, and pushing in until gauge prevents plunger from further movement. Plunger base will always be resting against back of the notch, with base of syringe barrel fixed against top edge of gauge. Distance between plunger base and barrel base will always be consistent; dose will be constant. (D.M.)

Meditec, Inc.
9485 East Orchard Drive
Englewood, CO 80111
(303) 771-4863

Price: large print label—$3.50
braille label— 4.00
raised numbers— 4.50
To order: obtain order for from Meditec

Morris Watts Insulin Gauge





Measures 5 1/2″ x 3/4″ approximately. Made of durable plastic. Consists of a long, narrow foundation into which are molded two sturdy raised clips and on which are mounted two adjustable blocks. The first set of clips, prongs, hold the syringe barrel; an inch below, a second set, a raised horizontal channel, holds the fingergrips of the syringe. On the bottom two-thirds of the foundation, the two stops are attached by screws to a vertical slide which allows them to move forward or back. The screws tighten the stops in the desired position to regulate the distance to which the syringe plunger may be either pushed or pulled. The plunger can move only between these two blocks. They allow a mixed dose to be drawn up.

During use, the syringe barrel and fingergrips are fixed in their respective clips with needle extending over the top edge of guide. The first "adjusta-stop" is shaped like the letter "H". While the narrow space between the uprights allows the plunger shaft to rest on the crossbar, it also catches and holds the disk of the plunger base. It is set at a distance corresponding to the dose of the first insulin and prevents the plunger from being pulled back farther than the distance needed to draw up prescribed dose of second insulin.

To draw up a mixed dose, a disposable syringe still covered by its needle guard is placed in the guide by slipping the syringe plunger into the first stop at the space between uprights of "H" and holding disk of plunger base against first stop while pulling syringe barrel forward with other hand until syringe fingergrips come to rest properly in the riase horizontal channel; then the barrel's midsection snaps into top prongs. Finally, the plunger is withdrawn until the disk of its base rests against second stop. The needle guard is removed, and the needle is inserted into first insulin vial. Plunger is pushed all the way to first stop to inject air and pressurize vial; because its motion is arrested by first stop, syringe will still contain a column of air equal to first insulin dose. Ideally, the plunger is then withdrawn quickly and smoothly so that insulin from the vial rushes into syringe and through air already contained. The first insulin thus fills barrel from bottom of space upwards in an amount greater than its prescribed dosage. The manufacturer recommends flicking the syringe barrel with the fingers at this point in order to disperse any air bubbles which might cause dosage error. Then excess insulin and the column of air on top are expelled into vial of first insulin by pushing plunger in until first stop again arrests its movement. With plunger thus pushed all the way to first "adjusta-stop," correct dose of first insulin is measured.

To measure second insulin, syringe is removed from first vial, and needle is inserted into vial of second insulin. Plunger is pulled to second (bottom) "adjusta-stop" to withdraw prescribed dose of second insulin for mixed dose. The manufacturer recommends that either a physician or nurse set this device and demonstrate its proper use; practice should proceed under medical supervision.

Essential features: For either B-D Plastipak Lo-Dose Syringe or Monoject disposable syringe in either 1cc (full size) or 1/2cc (lo dose).

Advantages: Screws, washers, and plastic are of highest grade material so that the "adjusta-stops" are fixed tightly and reliably at desired settings. Lightweight and compact. Durable. Fingergrip channel is designed to hold B-D Lo-Dose Syringe securely. With use of magnifying glass, consumer with low vision can set the device independently. (B.C.)

Disadvantages: Cannot be adjusted at will without vision. No provision for using device to measure and inject pressurizing air into second insulin. Monoject 1/2cc syringe fits less snugly into fingergrip channel allowing the possibility of some play and dosage error. Ability to use various brands and models of disposable syringes has potential for dosage error: once the device is set for one brand and type of syringe, it is accurate *only* for that brand and type, even while others will fit device. Large air bubbles replacing insulin and causing dosage error *can* occur if plunger is not withdrawn quickly and smoothly. As explained above, the first insulin must rush past a column of air already standing in the syringe. If the plunger is withdrawn too slowly, insulin does not rush in with sufficient force to flow under the air and displace it; rather, air is trapped at bottom of dosage column so that air bubbles form. In our limited experience and evaluation, the manufacturer's recommendation to snap barrel repeatedly does not always disperse bubbles so that insulin dose is corrected.

Solutions: To pressurize second insulin vial, an arbitrary amount of air may be injected with syringe before it is place in guide. To avoid interchanging brands and models of syringes and to avoid play noticeable with Monoject 1/2cc syringes, consistently use B-D Plastic Lo-Dose Syringes. To avoid air bubbles, practice proper technique under medical supervision until perfected or have syringe checked by sighted help.

Canadian National Institute for the Blind
350 East 36th Avenue
Vancouver, B.C.
Canada V5W 1C6

Homecraft Department
Canadian National Institute for the Blind
1929 Bayview Avenue
Toronto, Ontario M4G 3E8
Canada

Price: $3.25
(Canadian currency)

AFB Insulin Syringe





Measures 5 1/2″ in length with plunger fully extended; barrel is 1/2″ in diameter. Barrel consists of brass nickle-plated casing which encloses a 2 cc glass syringe barrel. Plunger is stainless steel. The principal fitting is a U-shaped brace or plunger stop. Also brass nickle-plated, the ends of the brace pivot on a nut which moves up or down the barrel of the casing by rotating along the screw-thread machined the entire length of the casing. When the brace is in line with the metal casing, it serves to catch the plunger base in the notched U of the brace, fixing the distance between plunger base and syringe base. This distance corresponds to a particular dosage of the interior glass syringe. This distance, and thus the dosage, is monitored and set by rotating the nut to which the brace is welded. Beginning with nut in position closest to needle end, each quarter rotation on screw-threaded casing produces an audible click; each click indicates an increase of 1/20 milliliter of liquid. The syringe may be used to measure any strength insulin—U-40, U-80, or U-100. The number of clicks to turn the nut must be determined mathematically for a particular insulin strength. For example, to determine number of clicks for a dose of 20 units of U-100 insulin, consider the following givens and reltionships: each click indicates 1/20 milliliter of liquid; each milliliter of U-100 insulin contains 100 units of insulin. Thus each click withdraws 5 units of insulin because 1/20 (number of milliliters per click) x 100 (number of total insulin units per milliliter of liquid in U-100 insulin) = 5 (units of U-100 insulin per click). Then 4 clicks would draw up the desired dose of 20 units (4 clicks x 5 units per click = 20 units of U-100 insulin). By turning nut so that 2 clicks are heard, the brace is in place to withdraw plunger for filling syringe with 10 units U-100 insulin; 3 clicks for 15 units; and so on.

With the U-shaped plunger stop so set for the correct dose, the plunger is first withdrawn fully. Then the U-shaped stop is pivoted up to the position which aligns with syringe barrel and plunger. Plunger is next pushed in until the disk of the plunger base is caught and halted by the notch in the bottom of the U-shaped stop: this procedure measures air to pressurize insulin vial. U-shaped plunger stop is pivoted down at a right angle with device barrel, to make way for the plunger to be pushed in. Thus air is injected into vial, vial with syringe still inserted is inverted, and plunger is then withdrawn to furthest position drawing up a quantity of insulin greater than required dose. To measure correct dose, U-shaped stop pivots once more to align with device barrel, and plunger is pushed in until disk of base is halted by preset plunger stop, as in measurement of pressurizing air. This maneuver expels excess insulin back into vial, and correct dose remains in syringe for injection. Entire unit is used.

Essential features: Requires addition of stainless steel needle or disposable microfine needles. Requires sterilization. Unit consists of seven separate parts: metal barrel casing; brace on nut; glass interior syringe barrel; needle connector; plunger shaft; plunger head (which can unscrew from plunger shaft); nut for base of metal barrel.

Advantages: High quality, durable materials. Precision-made. Independently adjustable. Can be used to change dose at will without sighted help. Could be used for multiple daily injections of regular (rapid-acting) insulin for tight control.

Disadvantages: High level of concentration and hearing and/or tactual sensitivity required to hear clicks or feel resistance which indicates dosage increments as stop is rotated on barrel. Because of number of separate parts, reassembly after sterilization can be difficult, especially with vision loss. U-100 insulin can be measured in 5-unit increments only. U-40 insulin can be measured in 2-unit increments (since each click = 1/20 milliliter, and 1/20 milliliter of U-40 = 2 units of insulin); however, U-40 insulin is being phased out. Math to determine number of clicks for desired dose can frustrate some persons. Difficulties can discourage reliance on device and thus independence. (J.W.O.)

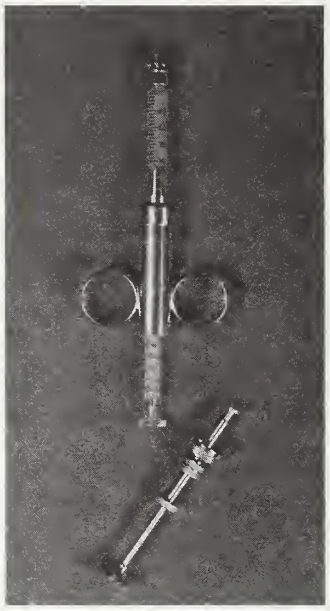
American Foundation for the Blind
Consumer Products Department
15 West 16th Street
New York, NY 10011

Price: $26.00
Order No.: MES 260

Boers & Co. B.V.
Postbus 67
3100 AB Schiedam
Rotterdam
The Netherlands

B-D Cornwall Syringe





Body of the principal mechanism measures approximately 3″ in length and 1/2″ in diameter. In its pronged opening, this metal cylinder holds a Becton-Dickinson glass 1 cc U-100 syringe, its barrel extending fully from the cylinder with the barrel base gripped firmly within the prongs. The cylinder itself contains the glass plunger which has been inserted through a metal spring. A metal plunger enters the base of the metal cylinder through a threaded metal regulating sleeve which screws into the base of the metal cylinder. Inside the metal cylinder, this threaded sleeve acts as a plunger stop; it fixes the distance to which the glass syringe plunger can be withdrawn and sets the prescribed dose of insulin. The more the metal sleeve is screwed into the base of the metal cylinder, the farther the glass plunger is set into the glass syringe barrel, and the smaller is the dose thus set. The two lock nuts at the top of the metal sleeve are to hold the setting tight. The metal plunger which slides through the sleeve also makes contact with the disk of the glass plunger inside the metal cylinder. With device held vertically and needle inserted into inverted vial, the function of the metal plunger is to push the glass plunger all the way into the glass syringe barrel, an action which expels air into the insulin vial and compresses spring around glass plunger. The metal plunger is then released, and this action allows the spring compressed around glass plunger to recoil and retract glass plunger but only to position of regulating sleeve, which acts as plunger stop. Thus the desired dose of insulin is withdrawn.

The two circular grips welded to the exterior of the cylinder enable the fingers to grasp the device firmly in order for the thumb to squeeze the plunger.

Essential features: Requires the addition of reusable stainless steel or disposable microfine hypodermic needles. Requires sterilization. When disassembled, consists of five separate components. Measures single dose only. To be set by health professional; can be ordered by doctor or nurse only.

Advantages: Can be set accurately (with the use of sight). Metal components are durable; glass syringe is replaceable. Withdraws proper dose smoothly and quickly.

Disadvantages: Must be set by sighted help. Without careful and consistent technique, lock nuts *can* unscrew and change setting (especially increase) during use or during disassembly sterilization and subsequent reassembly. (J.O.W.) (R.M.C.) Must be reset after each sterilization.

American Foundation for the Blind
Consumer Products Department
15 West 16th Street
New York, NY 10011

Inquire for price and availability

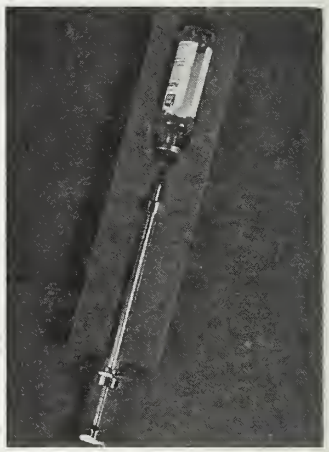
Independent Living Aids, Inc.
11 Commercial Court
Plainview, NY 11803

Price: $17.50
Order No.: 384890

Replacement Syringe
Price: $5.95
Order No.: 658225

Click-Count Syringe





Syringe measures approximately 5 inches in length. Consists of metal tip for connecting needles, glass barrel marked for one-unit increments of U-100 scale, metal base of syringe barrel, through which passes the shaft of the syringe plunger. The metal plunger shaft is notched at 2-unit intervals on one flat side, and the disk of its base is flattended on one side. Inside the metal base of the syringe barrel, the plunger shaft is gripped by two parallel pins. When the disk of the plunger base is turned so that its flat side aligns with a tactually prominent screw on base of syringe barrel, then the notched side of the plunger shaft is pulled under one of the parallel pins. Each notch clicks against the pin as plunger is withdrawn. Resistance is felt and a click is heard for each 2-unit increase. Thus air would be measured to pressurize vial. To inject air into vial, the plunger shaft would be turned one quarter revolution clockwise to free notched edge from parallel pins; this motion turns smooth sides of the shaft against the parallel pins—the "glide" position. Now the plunger may be pushed in smoothly to inject vial with measured amount of air. To withdraw prescribed dose of insulin, the disk of plunger base is turned clockwise until the flat edge again aligns with screw on syringe base. Now shaft is in position to indicate by clicks 2-unit increments as it is withdrawn. To withdraw plunger for insulin measurement, it is gripped between thumb and index finger close to syringe barrel. The grip is tightened and loosened with a squeezing action against base of syringe barrel. With the grip thus maintained close to barrel, the syringe shaft feeds through the fingers in movements of one notch at a time, always signaled by a click indicating 2 units of insulin. The dose can be checked by counting the exposed notch on the shaft with a fingernail. The number multiplied by two equals the number of units of insulin withdrawn into syringe. To inject, plunger shaft is turned to glide position and plunger is pushed in.

insulin withdrawn into syringe. To inject, plunger shaft is turned to glide position and plunger is pushed in.

Essential features: Requires sterilization. For use with U-100 insulin only. Can measure mixed doses. Manufacturer provides instructions.

Advantages: Simple in concept, beautifully machined, high grade materials. Accurate with careful, consistent, painstaking technique. Any dose may be measured at will independently.

Disadvantages: Requires highest degree of concentration, manual dexterity, hearing or tactual sensitivity, and patience. Slightest extra pressure during measurement can cause plunger to slide off setting to which it has been pulled.

Solutions: Practice under medical supervision is strongly recommended.

Hypoguard Limited
Dock Lane, Melton
Woodbridge, Suffolk
England IP12 1PE

Price: L 6.00

Needle Guides

AFB Needle Guide



Aluminum nut machined to fit vial cap of Eli Lilly insulin, AFB Needle Guide can be used with other brands but may not fit as snugly or may resist application and removal. Funnel-shaped interior of top guides needle to rubber stopper. Hexagonal base provides flat edges for gripping this relatively small object, but tactual sensitivity is still required. (A.R.V.) Sterilize guide to prevent needle contamination. Made of aluminum which may scratch and burr to catch or blunt needle.

American Foundation for the Blind
15 West 16th Street
New York, NY 10011

Price: $2.50
Order No.: MES 168

Centrepoint Needle Guide



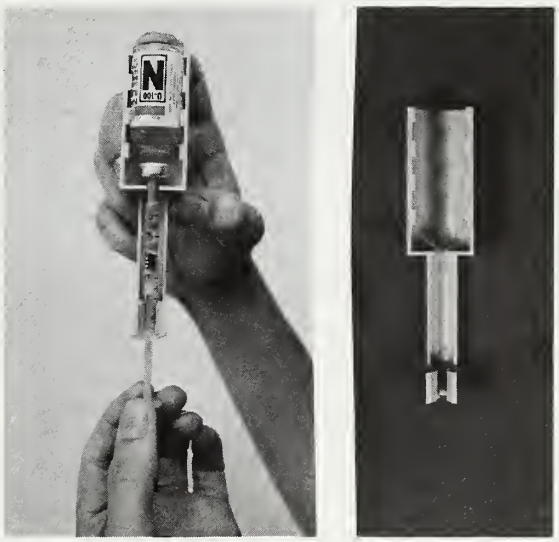
Aluminum sheath, 1 3/4", provides cradle for narrow vials of Nova range of insulins, which are manufactured in Denmark, distributed in Western Europe and United Kingdom, and have been recently marketed in the United States. Friction holds the guide in place, topped by high quality medical grade stainless steel funnel which guides needle to vial stopper. Sterilization by boiling is recommended preparation before each use.

Manufacturer reports production of another model to fit the Burroughs Wellcome range of insulin available in the United Kingdom. In addition, manufacturer intends to produce a Centrepoint to fit Eli Lilly brand of insulin in the near future.

R.N. Beard
15 Kings Ride
Blackfield
Southampton SO4 1ZN
England

Price: L 7.00

Holdease Needle Guide



Plastic cradle to hold vial aligned with trough to hold syringe. Barrel of syringe is held by clip molded onto trough while needle protrudes through slot in center divider to penetrate vial stopper on target. To prepare for use, cleanse divider with alcohol swab. Clean in warm suds; do not immerse in water hotter than 150°F (well below boiling). Ideally, no part of guide requires sterilization since no part interrupts path of needle to vial stopper. Manufacturer provides clear directions for use. Designed for standard American insulin vials but can be used with tall, narrow bottles common in Europe. Keeps vial and needle steady for easy handling as a single unit, even for those having coordination problems. (D.M.) Useful with staple templet or Insulgage. (R.B.C.)

American Foundation for the Blind
Consumer Products Department
15 West 16th Street
New York, NY 10011

Price: $11.75
Order No.: MDC 8120

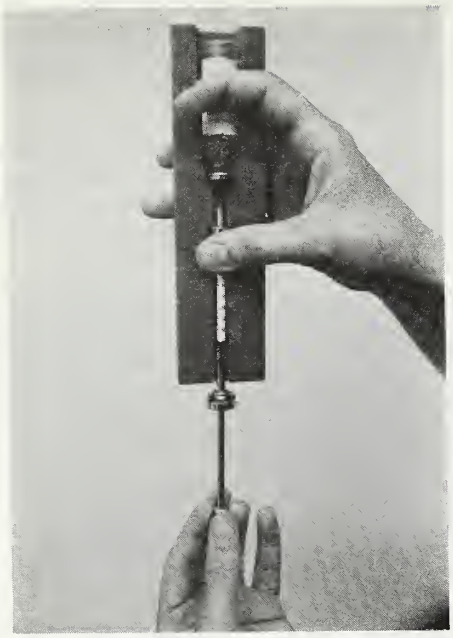
Independent Living Aids, Inc.
11 Commercial Court
Plainview, NY 11803

Price: $9.95
Order No.: 37022

Meditec, Inc.
9485 East Orchard Drive
Englewood, CO 80111

Price: $9.75

Location Tray



Heavy, durable plastic foundation is impressed with shape of insulin bottle aligned with trough for glass insulin syringe. The bottle well will accept either the elongated European vial or the stocky American type; the syringe trough will accept *only* long, thin glass syringes such as type used in Click-Count Syringe. The Click-Count Syringe fits perfectly. With bottle and syringe aligned in tray, needle is directed to center of vial stopper. When in vertical position for insulin withdrawal, tray does not hold syringe and vial tightly. Plastic is smooth and rigid: it cannot hold vial and syringe by friction, and it has no clipping features. Manufacturer does not specify sterilization procedure.

Hypoguard Ltd.
Dock Lane, Melton
Woodbridge, Suffolk
IP12 IPE
England
Tel. 03943 7333

Price available on request from manufacturer.

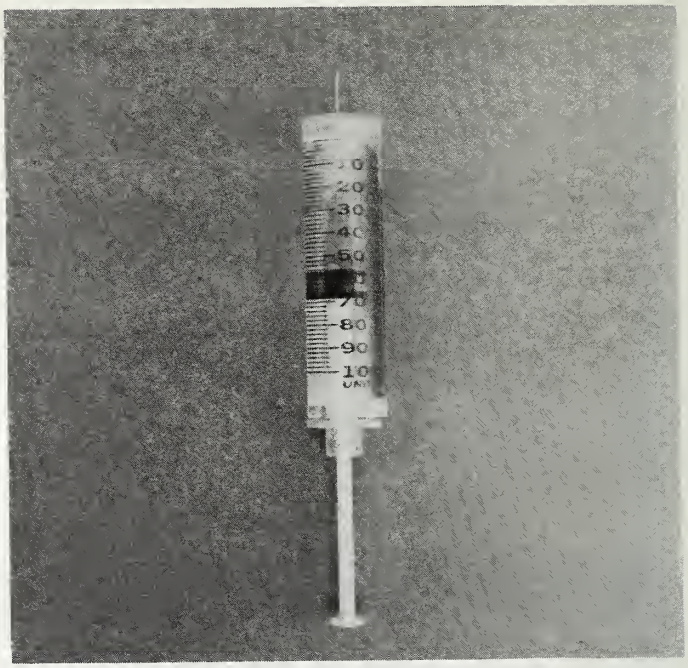
Syringe Magnifiers

When contributors to this issue of AAR were surveyed regarding the available syringe magnifiers, it was revealed that most insulin syringe magnifiers have been found to be of limited use especially to the severely impaired population. Joyce Schulz offered the following information in response to a request for an evaluation of syringe magnifiers:

> For people with sufficient vision to read syringe calibrations visually, Monoject "Half CC" or B-D Lo-Dose disposable syringes are available. These syringes measure 50 units of insulin or less and are easier to read as each unit on the syringe is marked in large numbers.
>
> For those who desire more magnification, Char-Mag Company of Milwaukee manufactures a syringe magnifier that fits the entire length of the syringe and does not distort the numbers which are two advantages this device has over other syringe magnifiers. However, if a person has sufficient visual loss, possibly coupled with fluctuating vision, so that he or she cannot read the syringe, it is recommended that for safe and accurate measurement a non-sighted technique be used. Very often the magnification is sufficient to make the numbers readable but not the line calibrations between numbers.

For independent evaluation and inquiry, the following resources for insulin syringe magnifiers exist.

Char-Mag Syringe Magnifier



Device is a 2½" bar magnifier that clips onto a B-D Long Plastipak U-100 Syringe or the Monoject 1 cc disposable plastic syringe. It extends the entire length of the syringe.

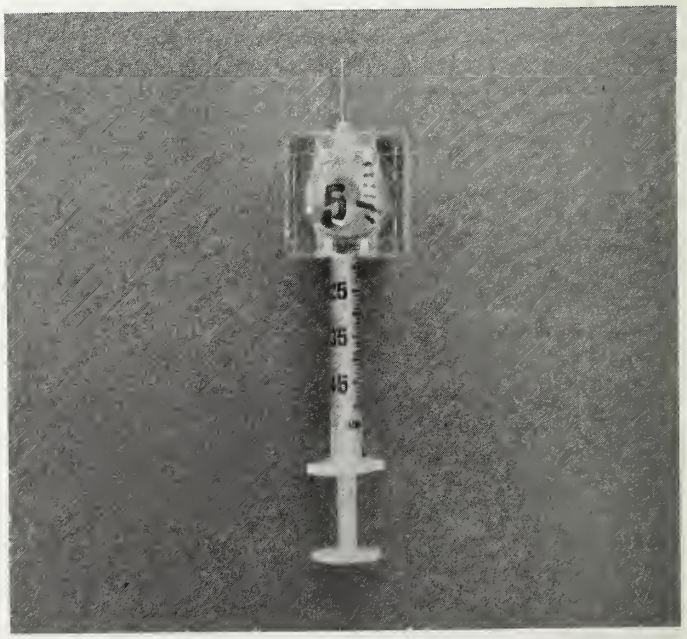
American Foundation for the Blind
Consumer Products Department
15 West 16th Street
New York, New York 10011

Price: $4.50
Order No. LMC 7100

Independent Living Aids
11 Commercial Court
Plainview, New York 11803

Price: $4.50
Order No. 074300

Monoject Syringe Magnifier



Device is a 3/4" circular magnifier centered in a rectangular plastic housing that clips onto syringe in area of dosage to be measured. Will fit any plastic disposable insulin syringe, andy brand, any type.

Monoject
Division of Sherwood Medical
St. Louis, MO

Price: $1.98 (suggested retail)
Available through local pharmacies.

GLUCOSE LEVEL MONITORING

According to clinical definition, diabetes control means maintaining the concentration of glucose in the blood at levels within the range considered normal. Amount, kind, and timeing of food intake, of exercise, and of insulin injected can interplay to establish and maintain the blood glucose level within normal ranges. (Refer to "Diabetes: Some Physiological Considerations for the Blind Person.") Because the distinct but interrelated influences of diet, exercise, and insulin therapy converge to increase or decrease the amount of glucose in the blood, the blood glucose level can be seen to reflect the effectiveness of efforts to manage any one, or all, of the points of the network: diet, exercise, insulin therapy. Monitoring blood glucose levels is thus a crucial aspect of diabetes control. When levels rise above or fall below normal range, they can signal need for adjusting diet, exercise, or insulin dose.

Equipment for Urine Glucose Analysis

Either blood or urine may be tested to detect the concentration of glucose in the blood. Until recently, the method commonly used was the procedure of testing a urine specimen for glucose. Glucose in the urine often, but not always, results from higher than normal concentrations of glucose in the blood, since it is the function of the kidneys to cleanse the blood of any impurities (in this case, exessive sugar) and spill the impurities into the urine to be voided from the body. Thus, the percentage of urine sugar can reflect the percentage of blood sugar. (Refer to "Home Blood Glucose Monitoring for the Visually Impaired Diabetic" for an explanation of the limitations on interpreting blood glucose levels from urine glucose levels.)

Commercial Reagent Tests

The basic equipment for urine testing is (1) a second specimen of urine voided 30 minutes after a first void, during the hour before a mealtime, and (2) one of the several chemical tests available. The chemical tests consist of reagent material which reacts chemically with any sugar present in the urine and which indicates that reaction by changing to one of several specific colors; the specific color correlates with a specific percentage of sugar in the urine. (For a detailed evaluation of the four major commercial reagent products—Clinitest, Tes-Tape, Diastix, and Clinistix—consult the *Joslin Diabetes Teaching Guide.*) The test is accomplished by dipping the strip of reagent material into the urine specimen and matching the strip's resultant color change to a color chart labeled in respect to percentages of sugar indicated. With the Clinitest product, tablets are dropped into a carefully prepared urine specimen, and the entire specimen is observed for a change in color.

Obviously, vision loss can either interfere with comparing the color change to the color chart or can make it impossible. Even with remaining light and color perception, matching the colors can be a problem, since for all the products the closeness in hue of the individual colors can render them difficult to distinguish. For example, the Tes-Tape, approximately 1/4 inch wide, changes from yellow, to light green, to darker green/blue, to darkest green/blue. Though it might be possible to discriminate the extremes—yellow to indicate sugar-free, as distinguished from darkest green/darkest blue to indicate 2% or more—it can be highly problematic to identify the middle ranges. Likewise, Diastix colors have been perceived as too close in hue for certain discrimination—blue, light green, dark green, olive green, light brown, dark brown—to indicate certain percentages of sugar. A larger surface of reagent material has been found helpful to some people; the color change of a longer than normal strip of Tes-Tape, even though still narrow, can sometimes be distinguished with remaining vision. The pre-cut reagent strips called Diastix come in a larger, 1/2″ wide size, under the trade name Mega-Diastix. For some people the color changes of this product are distinguishable.

Audible Urine Analyzers

Electronic devices which can sense the specific color changes on reagent material and which can audibly signal the specific color provide an alternative to sight in testing urine for glucose percentage.

The Uricator, manufactured by Science for the Blind, electronically detects and compares the color changes on a strip of Lilly Tes-Tape; it audibly indicates the color and thus the glucose percentage. The cassette tape which accompanies the *Uricator* provides the technical description of the device along with step-by-step instructions for operating it, as follows.

Housed in a black plastic box, which measures 5″ x 4″ x 1 1/2″, the *Uricator* operates on a nine volt battery. The box rests on four small rubber feet. On the top surface of the box toward the front is a row of four push buttons; behind the push buttons on the right is a small toggle switch, which turns the unit on. To the left of the toggle switch is the test block consisting of two small, parallel bars about 1/2″ apart. The sensing window lies in the space between the two bars. A hinged cover closes down between the two bars and over the sensing window.

The device operates as follows. A urine specimen is first prepared in the usual way. A one or two inch strip of Tes-Tape is pulled from the roll and dipped in the urine; after a wait of one minute, the wet tape is placed in the slot and over the sensing window, between the two raised bars, and the hinged lid is closed and held down over the tape to keep it flat and to keep out extraneous light. Under the tape, the sensing window consists of a square of transparent plastic covering a hole through which a light from inside the box shines onto the under side of the tape, then reflects back through the hole to the sensor. The sensor's response is proportional to the color of the tape. With the hinged cover held down lightly on the tape, the four buttons are pushed in succession, beginning with the leftmost button, until one of the buzzers sounds, indicating the sensor's response. If the first button sounds (yellow), it indicates no sugar; if the second buzzes (light green), 1/10%; if the third (darker green/blue), it signals 1/4%; and if the fourth (darkest blue/green), 2% or more.

One of the critical aspects of this test is the one-minute lapse of time between dipping the Tes-Tape into the urine and testing for the color change; this exact amount of time is required for the reagent material to respond to any percentage of glucose and change colors. So that the person using the *Uricator* does not have to time the minute somehow, the timer is built into the unit. The Tes-Tape is dipped into the urine *just before* the toggle switch activating the machine is switched on. Switching the toggle switch to "on" not only activates the device but also starts the one-minute timer built into the machine; a buzz sounding from within the box indicates that the critical one minute has elapsed; the Tes-Tape, having made any color change, is ready for detection. The machine will then be active, capable of sensing and indicating the specific color change, *only* for the next *30 seconds*. Within that 30 seconds it is crucial to place the wet tape into the slot of the testing block, pull down the hinged lid, hold it gently down over the tape, and push the testing buttons in succession, until one sounds. If the test has not been completed within the 30 seconds following the "activated" buzz, then the machine must be turned off, and the test performed all over again through each step of the sequence using a new strip of Tes-Tape. The original strip will not give accurate results for a second test.

The time limit of 30 seconds is said to be adequate for most *practiced* users. It is emphasized that for initial tests with the device, the user should practice with sighted help so that double-checks may be made on the tape's color change and the device's audible signal. For persons who have access to sighted help and to a *blood* glucose monitoring device, the results of the Uricator analysis may also be compared with those of direct blood glucose testing. (For one *Uricator* user in the Boston, Massachusetts, area, the *Uricator's* results compared favorably with the results of her blood glucose

monitor, whose digital display of glucose percentage was read by family members.)

So far, one limitation of the *Uricator* has been noted: its accuracy depends on the accuracy of the reagent material used, Tes-Tape. In many circles there is some controversy regarding the accuracy of Tes-Tape; it is felt that the color changes in the upper ranges are too ambiguous to make the tape reliable for glucose percentages above 1/2%.

But some *Uricator* users have reported much satisfaction with the device. One person interviewed compared the results of the Uricator with other methods of urinalysis undertaken with sighted help: she observed that the *Uricator* results were, for her, just as accurate. Certain overall contributions of the device have been reported also. To a homemaker, who manages diabetic control independently during daylight hours, the *Uricator* gives the capability of objectively confirming any high glucose levels; with this information, she can decide either to plan different foods or eat less for a few meals, or to take time out for walking, stationary cycling, or swimming—activities in her regular exercise program. She states enthusiastically that using the *Uricator* makes her feel more in tune with herself and more in control of her life. The catalogue of Science for the Blind tells of the experience of another *Uricator* owner: "During a bout of flu he monitored his sugar level closely, eating or not at bedtime, depending on the level, and not disturbing his wife to help with a test in the middle of the night."

Uricator

Science for the Blind Products
Box 385
Wayne, Pennsylvania 19087
(215) 687-3731

(Calls for orders or information are taken 10 a.m. to 10 p.m. each day.)

Price: $125.00
Order No.: T-16

The Hypo-Test Audio Urine Meter is produced by Hypoguard Ltd. in England and is not yet available in the United States. However, upon approval by the Food and Drug Administration, the company plans to explore with the American Foundation for the Blind the possibility of marketing the *Hypo-Test* in the U.S.A. Like the *Uricator*, the *Hypo-Test* is a compact plastic box; the top surface contains the test block for holding the wet Diastix as well as the knob turned to activate the indicator-buzzer. The company provides the following current product specifications:

> This instrument measures glucose levels in urine in conjunction with an Ames Diastix. Range: 0%-2%. Accuracy: Instrument only + 5%. Power: Batteries rechargeable—100 operations between charges. Size: 16cm x 10cm x 6cm. Temperature: Designed for operation in temperatures of 0 C—50 C. Features: Timer gives audible signal for drying Diastix; Results are communicated by buzzer code for the following values: 0%, 1/10%, 1/4%, 1/2%, 1%, 2%; an abort signal sounds if user delays in completing the test sufficiently to make test inaccurate; a special battery test function allows battery level to be checked prior to urine test. The Diastix holder can be removed from the device for washing.

Hypo-Test

Hypoguard Ltd.
Dock Lane, Melton
Woodbridge, Suffolk
England 1P12 1PE
Tel: Woodbridge (03943) 7333/4

A homemade urine-glucose analyzer with an audible code can be built from components purchased from an electrical supply store. One such device is described in the March 1977 issue of *Diabetes*, volume 26, pages 192-195; it is called the *Audio-Urine-Glucose Analyzer*. The authors of the article, who developed the machine, describe its construction and their testing of it. Provided as well are essentials for constructing and using the device: the circuit diagram, instructions for calibrating the device, instructions for operation. The authors estimate a cost of $150.00 (1977 prices) for materials and about 24 hours of work.

Yeast Method

An alternative method of urine-glucose analysis, which might be called tactual, is the yeast method. Though it can be messy, cumbersome, and time-consuming, the procedure is still used by some people. It is based on the fact that glucose reacts with yeast to produce a gas, carbon dioxide. A test tube containing the urine specimen (approximately 12 cc) receives 1/4 teaspoon of yeast; a finger cot is then placed over the test tube opening. After about 10 minutes, if glucose is present in the urine, the yeast reacts with it to produce carbon dioxide; the gas expands to inflate the finger cot covering the test tube. The relative tautness of the inflated finger cot can be felt to determine the approximate amount of glucose present—none, a moderate amount, a great deal. The information gained is only a rough indication. Yet even with its obvious limitations, the method may be appropriate for some people seeking independence in urine-glucose analysis with vision loss.

For all of the methods of urine-glucose analysis described, the advantages are to be weighed against limitations, and, of course, any selection of method must take into consideration the particular needs and capabilities of the person using the method—amount and kind vision loss, hand motor skills (though no extraordinary ones are needed), motivation. In addition, it should be remembered that there are limitations to the value of urine-glucose testing explained in the following article, "Home Blood Glucose Monitoring for the Visually Impaired Diabetic."

Home Blood Glucose Monitoring for the Visually Impaired Diabetic

by

Judith W. Oehler, R.N., Ed.D.

Home blood glucose monitoring is perhaps the most exciting innovation in the treatment of diabetes since the discovery of insulin. With a disease which must be patient-managed, it is inspiring that diabetologists have realized the importance of providing to the diabetic the opportunity to monitor blood glucose, a responsibility previously restricted to the physician.

As indicated by the title of Dr. Charles Peterson's book, *Take Charge of Your Diabetes*, home blood glucose monitoring enables the individual to take charge rather than to be controlled by the diabetes. In addition, "The assumption by patients of the responsibility for management of their own disease tends to break the pattern of nihilism and frustration often found in both patient and physician."[1] Finally, home blood glucose monitoring teaches even the veteran with diabetes new information regarding the effect of insulin, food and exercise upon the blood sugar.

Urine testing, the traditional method for monitoring diabetes self-care, provides only an indication of how high or low the blood sugar actually is. Normally, one's blood sugar should be between 70 and 140 milligrams per deciliter (mg/dl) of blood. Ninety mg/dl is the normal premeal blood sugar. Glucose or sugar normally spills into the urine (renal threshold) at 180 mg/dl. Consequently, a negative (blue) urine test with Clinitest indicates that the blood sugar is 180 mg/dl or lower, but not how low, and can reflect a blood sugar ranging anywhere from 0 to 180 mg/dl. A trace reading with Clinitest indicates that the blood sugar is at least as high as 180 mg/dl. A four plus (yellow or orange) Clinitest reading indicates that the blood sugar is high, but not how high. Blood sugar in this case can be 350 mg/dl or higher. Another problem with urine tests is that the renal threshold of long-term diabetics may be altered so that glucose may spill into the urine at a point above 180 mg/dl. In such cases urine tests appear lower than they actually are. In general, while urine testing provides one with a "hunch" as to what the blood sugar is, home blood glucose monitoring provides an exact reading.

The individual experiencing vision loss from advanced diabetic retinopathy may be frustrated with the inadequacies of urine testing, and yet may also be frustrated by the difficulty or inability to perform home blood glucose monitoring because of the visual impairment. Rather than approaching this situation helplessly, it is the opinion of this author that the individual must say to himself or herself, "If home blood glucose monitoring is important to me, I will find a way to have the test performed in spite of my visual impairment." It is also the opinion of this author that the easiest way to initiate a program of home blood glucose monitoring, is to begin by using the Chemstrip bG system manufactured by Biodynamics. Chemstrips do not require the use of a reflectance meter, or wash bottle and sink, they are extremely portable, and they are easy to read because the strip has two color reagent zones. Blood is placed on the reagent zone and wiped off with moderate pressure using cotton or tissue sixty seconds later. After waiting four minutes, the colors of the reagent zones are compared with color blocks ranging from 20 to 800 mg/dl which are on the Chemstrip bottle. Because of its simplicity, the low vision diabetic may be able to perform the Chemstrip test, but should there be difficulty matching the strip to the color blocks, it can be saved and read by another person later, as the strip remains stable. If the diabetic cannot perform the Chemstrip test, it is relatively easy for family, friends or readers to learn the procedure. The portability of the test permits it to be conducted in the office of a colleague, the home of a friend, or in any other location.

Chemstrips can usually be ordered through a local pharmacy. Each bottle contains 25 strips. The expense of the strips and the amount of blood needed to cover the two reagent zones on a strip can be reduced by cutting Chemstrips in half lengthwise. When cutting strips, it is important not to touch the reagent area, and when cutting is finished, strips should be placed immediately back in the bottle for storage.

Reflectance meters or home blood glucose monitoring machines are also available. The main advantage of these machines is that they read the strip directly so that visual inspection of color zones is not necessary. However, the main drawback of these machines is that they are expensive as well as somewhat more complicated to use. Both Ames Company and Biodynamics Company manufacture reflectance meters in the United States. The term reflectance meter refers to the amount of light reflected or absorbed by the reagent area which is dependent on the amount of glucose in the blood. With the STATTEK from Biodynamics, blood is placed on a STATTEK strip and wiped off after sixty seconds. After an additional sixty seconds, the strip is placed in the STATTEK machine which reads the amount of sugar on the strip in a manner similar to a scale. The meter provides readings from 50 to 350 mg/dl.

In 1970, Ames Company produced the EYETONE meter. This was the first reflectance meter available to measure blood glucose using a reagent strip. In the early 1980's, Ames developed the DEXTROMETER, a lighter machine than the EYETONE, which provided a digital read out of the blood sugar, and had the ability to be operated by a battery pack. The DEXTROMETER sells for $275. Soon after the DEXTROMETER was on the market, Ames developed the GLUCOMETER specifically for use by patients.

The GLUCOMETER which lists for $250 is lighter than the DEXTROMETER, is battery operated, has a digital read out, and in addition a built in timer which indicates when the strip should be washed off. With all Ames machines, the Dextrostix must be used, and the strips must be washed off with a stream of water at a specific time.

Studies have shown that the results of blood tests performed by diabetics in the home are as reliable as those performed in the laboratory. In addition, Chemstrips have been found to be as effective as tests performed by the reflectance meters.

Most people find the easiest method for obtaining a drop of blood from the finger is to use the Autolet manufactured by Ames, which takes the Monolet lancet manufactured by Monoject. The Autolet is a device into which a lancet is placed so that when a button on the device is pressed, the finger is automatically lanced or pricked. To obtain a drop of blood, the finger is swabbed with alcohol and wiped dry with a tissue or allowed to dry. (Alcohol distorts the test.) Before lancing the finger, if it is cold it may be warmed in water or massaged to get the blood flowing through it. Tissue juices squeezed out with the blood will not distort the results. The sides of the finger between the tip and first joint should be used rather than the pad of the finger where nerves are concentrated. Once the finger is pricked, a drop of blood should be "milked" out by dropping the finger below the heart, and slowly massaging it until a drop of blood forms. When a drop of blood has formed, the strip is brought to it, and the drop of blood is transferred from the finger to the strip. Smearing should be avoided, and the entire reagent area should be covered.

None of the home blood glucose monitoring systems have been adapted for use by the visually impaired diabetic. For the individual severely visually impaired from advanced diabetic retinopathy, the most difficult step would be transferring the drop of blood from the finger to the strip. However, if it were important to the individual, even this step could be mastered. Because it would be difficult to master this step, companies which manufacture reflectance meters have not invested money in adapting machines for the visually impaired. However, this author believes that the more phases which the visually impaired diabetic can control during the blood test, the easier it will be for him or her to become involved in home blood glucose monitoring. Therefore, it would be of benefit to the blind diabetic if the reflectance meters had auditory output. The more steps the visually impaired diabetic can control, the easier it is for him or her to instruct a sighted individual to assist with the remaining steps in the test.

Since use of Chemstrips bG is relatively easy to learn, the visually impaired diabetic may want to begin home blood glucose monitoring using this system. If the blind diabetic familiarizes himself or herself with this system, he or she may supervise a sighted person performing the test. Public Health and Visiting Nurses as well as representatives of Ames and Biodynamics can be helpful in instructing visually impaired diabetics and sighted blood testers in proper techniques. State and Chapter affiliates of the American Diabetes Association can be helpful in supplying information on local representatives of these companies, and on medical companies supplying test strips, Autolets, lancets and related equipment.

In general, persons who conduct home blood glucose monitoring have the advantage of knowing precisely what their blood sugar is, and of learning how specific amounts of food, insulin, and exercise affect their blood sugar. Another advantage is improved well-being and lessened depression. It is possible that maintaining normal blood sugar (euglycemia) can prevent or delay the onset or progression of eye, kidney and nerve complications. Many diabetics who embark on programs of home blood glucose monitoring, find that the condition of neuropathy improves. Episodes of hypoglycemia have been reported to decrease, and in one study, symptoms of hypoglycemia previously identified were actually found to be related to normal or high blood sugar. Another advantage of blood testing is that the blood pressure and pulse often decrease resulting in less strain on the heart. Finally, an important advantage is that diabetics who test their blood sugar involve themselves as partners in controlling their chronic disease, with their physicians acting as consultants.

The main disadvantage of blood glucose monitoring is the expense of the strips and reflectance meters, and the commitment of time. Time involved in blood testing decreases with familiarity. Initially, the need to lance the finger may seem like a drawback, but just as one becomes accustomed to insulin injections, one becomes accustomed to finger pricks.

Record keeping is extremely important so that one may act on the results of the blood test. Results may be documented by use of tape

recorder, or notebook when sighted persons assist with the test. The GLUCOMETER has a built in mechanism for recording test results. Initially, seven blood tests should be performed daily, before each meal, one hour after each meal, and before bed. For approximately two weeks the date, time of test, amount of insulin taken, exercise schedule, hypoglycemic episodes and other relevant information should be recorded. Records should be discussed with the physicians who will advise an appropriate alterations in the regime. Once euglycemia is attained, two to four blood tests daily are optimum.

Perhaps the most helpful book which has been published on the subject of home blood glucose monitoring is *Take Charge of Your Diabetes* by Charles M. Peterson, M.D. The book has been recorded by Recording for the Blind (215 East 58th Street, New York, New York 10022). An inkprint copy may be purchased for $3.95 form P.O. Box 9754, St. Paul, Minnesota 55197. It would be advisable to read this book before embarking on a home blood glucose monitoring program. In addition the July-August 1980 issue of *Diabetes Forecast* has an excellent article which discusses this subject.

It is extremely important that the visual impairment not interfere with testing urine or blood for glucose. The visual impairment may make it more difficult to initiate a program, but once a program is developed, the individual will find it becomes routine.

REFERENCES

1. Peterson, C.M., Forhan, S.E. and Jones, R.L. "Self-Management: An Approach to Patients With Insulin-Dependent Diabetes Mellitus." *Diabetes Care*, Vol. 3, No. 1, Jan.-Feb., 1980.
2. Birch, K., Hilldebrandt, P., Marshall, M.O. and Sestoft, L. "Self-Monitoring of Blood Glucose without a Meter." *Diabetes Care*, Vol. 4, No. 3, May-June, 1981.
3. Jovanovic, L. and Peterson, C.M. "Is Home Blood Glucose Monitoring For YOU?" *Diabetes Forecast*, Vol. 33, No. 4, July-Aug., 1980.

DIET AND EXERCISE MANAGEMENT

Diet

The effects of food and exercise on blood glucose levels have been and continue to be subjects of diabetes research. In respect to food, it is traditional clinical practice to prescribe a diet balanced in protein, fat, and carbohydrate and planned for calories as one component in glycemic control.

For many diabetics, a correlation between eating concentrated sweets and experiencing steep rises in blood glucose levels has been observed; thus, candy, pastry, and other foods saturated with simple sugar are eliminated from the orthodox diabetic diet. In addition, calories are controlled to fit exactly the person's energy requirements: calories are kept to the minimum to maintain ideal weight, since it has been observed that excess body fat can interfere with the cells' use of insulin; yet calories are also held at levels sufficient to balance the insulin dose, to prevent blood glucose levels from falling below normal.

In order to plan meals and prepare foods in accordance with this diet, information on food content is necessary along with recipes calculated for calories and for carbohydrate, protein, and fat in the prescribed balance. Exchange lists provide information on food content by dividing specific foods among basic categories such as milk, vegetable, fruit, bread, and meat. A measure of a specific food within a category will equal 1 Exchange—for example, 3 tablespoons of wheat germ equals 1 Bread Exchange. Exchange lists are used in conjunction with the diabetic diet, also called the diabetic meal plan, which details numbers and kinds of exchanges permitted each meal daily. Basic information on food composition is available in books on nutrition and in bulletins published by the U.S. Department of Agriculture. Exchange lists and meal plans are available from the American Diabetes Association, headquartered at 2 Park Avenue, New York, N.Y. 10016, with local affiliates across the country; diabetic clinics associated with large hospitals frequently prepare and provide their own exchange lists and meal plans tailored to the individual diabetic. Diabetic cookbooks provide recipes for dishes to fit the diabetic meal plan, and they are available, along with exchange lists and books on nutrition, in braille, on cassettes or disks, or in large print editions. A partial listing follows, and includes other cookbooks which are adaptable to the diabetic diet and available in nonvisual media or large print.

Resources

Breads: Guild Tested Recipes
Marie Porter, Editor
Chicago: The Guild for the Blind
50 recipes for wholesome yeast breads. (But recipes for quick breads contain much simple sugar.)

The Guild for the Blind	Braille
180 North Michigan	Cassette
Chicago, IL 60601	Large Print
(312) 236-8569	Price: $6.00

The Calculating Cook
by Jeanne Jones
San Francisco: 101 Productions, 1978
French sauces, Mexican dishes, curries, and other exotic food adapted for diabetic diet. Approved by the American Diabetes Association.

101 Productions	
834 Mission Street	
San Francisco, CA 94103	
or	
Charles Scribner's Sons	
Book Warehouse	
12 Breeland Avenue	Print
Totonia, NJ	Price: $5.95
and	
The Lighthouse for the Blind	
111 East 59th street	Braille
New York, NY 10022	Price: $34.00

A Cookbook for Diabetics
Pittsburgh: Forbes Health Systems, 1976
Recipes with exchange breakdowns; exchange breakdowns for commercial, processed foods.

Education Department	
Forbes Health Systems	Print
500 Finley Street	Price: $2.50
Pittsburgh, PA 15206	Postage: .50

American Printing House	
for the Blind	
1839 Frankfort Avenue	
P.O. Box 6085	
Louisville, KY 40206	Braille
(502) 895-2405	Price: $11.00

Cookbooks for People with Diabetes
Selected Annotations, Prepared by the
National Diabetes Information Clearinghouse, May 1981
Listing of 44 cookbooks published since 1976. Ordering information given.
National Diabetes Information Clearinghouse
805 15th Street, N.W., Suite 500
Washington, D.C. 20005 — Print
(202) 842-7630 — Price: Free

Craig Claiborne's Gourmet Diet
by Craig Claiborne and Pierre Franey
Haute cuisine: low salt, low fat, beefless recipes.
Print
Local bookstores, libraries — Price: $2.95/paperback $10.95/hardcover

Regional Library for the Blind
and Physically Handicapped
or
Library of Congress
Division for the Blind
and Physically Handicapped
1291 Taylor Street, N.W. — Disk: Order No. RD 15781
Washington, D.C. 20542 — Cassette: Order No. RC 15781

The Diabetic Gourmet
by Angela Bowen, M.D.
New York: Harper and Row, 1970
Family meals, diabetic recipes, emphasis on unsaturated fats. Carbohydrate, protein, fat content for individual portion.
Print
Local bookstores, libraries — Price: $10.95

Regional Library for the Blind
and Physically Handicapped
or
Library of Congress
Division for the Blind
and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542 — Disk: Order No. TB 3733

Diabetic Menus, Meals, and Recipes
by Betty M. West
Garden city, New York: Doubleday and Company, Inc.
Recipes with breakdowns for calories, vitamins, minerals, exchanges.
Doubleday and Co., Inc.
501 Franklin Avenue
Garden City, NY 11530 — Print
(516) 294-4561 — Price: $7.95
and
G.K. Hall
70 Lincoln Street — Large Print
Boston, MA 02111 — Price: $12.95

The Diabetic's Total Health Book
by June Bierman and Barbara Toohey
Los Angeles: J.P. Tarcher, Inc., 1980
Balances various perspectives on diet provided by new trends in nutrition and insulin therapy; looks at exercise with diet and blood sugar control.
Sugarfree Center for Diabetics
5623 Matilija Avenue — Print
Van Nuys, CA 91401 — Price: $10.95
Also available at local bookstores, libraries.

Diet and Nutrition: A Holistic Approach
by Rudolph Ballentine, M.D.
Honesdale, Pennsylvania: The Himalayan
International Institute, 1979
Basic explanation of physiology of food intake, digestion, and metabolism, including body's use of complex carbohydrates (whole grains, legumes, etc.) in holistic context.
Himalayan International Institute — Print
Honesdale, PA — Price: $8.95

Regional Library for the Blind
and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542
(202) 882-5500 — Cassette: Order No. RC 15777

Easy Cooking for One or Two
by Louise Davies
Written by specialist in geriatric nutrition. Emphasis on non-meat protein.
Mrs. Audrey Artus
ADA Reading Service
12 Renhold Road — Cassette
Wilden, Bedford — To order: send self-addressed stamped
England — envelope with 2 C60 cassettes.
Telephone: Bedford (0234) 771693 — Price: Free
and
Magna Print Books
Magna House
Long Preston, near Skipton
North Yorkshire BD23 4ND
England — Large Print
Telephone: Long Preston (07294) 225 — Price: L5.50

The Elegant Touch Cookbook: Gourmet Cooking for the Diabetic
by Marjorie Zats and Karen Rubin
Minneapolis: Jonathan David Company
Classic European cuisine adapted to diabetic diet: menu suggestions, caloric values, exchanges, cooking hints.
Jonathan David Company
540 Taft Street, N.E. — Large Print
Minneapolis, MN 55413 — Price: $9.45

Encore
compiled and recorded
by Library of Congress
A bimonthly "talking" magazine. Includes *Diabetes Forecast*, which contains articles on diabetes, recipes, resources, etc.
Regional Library for the Blind — Cassette available through
and Physically Handicapped — direct circulation.

Exchange Lists for Meal Planning
prepared by American Diabetes Association
Wide variety of common foods ranked in exchange lists according to food category and measure.
Volunteer Braille Services
P.O. Box 1592
Houma, LA 70361 — Cassette
(504) 872-9658 — Price: $5.00
and
Regional Library for the Blind
and Physically Handicapped
or
Library of Congress
Division for the Blind
and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542
(202) 882-5500 — Cassette: Order No. RC 165

Look 'N Cook
by Ida Erickson
Willmar, Minnesota: Biword, 1980
Includes chapter of recipes for diabetics. Hearty favorites (spaghetti, stew, macaroni and cheese) with exchange breakdowns.
Biword Publications — Large Print
Box 20 — Price $9.95
Willmar, MN 56201 — Postage & Handling: 2.00

Exercise

The role of exercise in diabetes control is less certain than that of diet. Generally, in providing information on diabetes control, medical professionals state that exercise is desirable, and they point out its blood glucose-lowering effects in conjunction with insulin; they mention that exercise can play an important part in the treatment of diabetes (Joslin's *Diabetes Mellitus*, p. 291). But the effects of exercise on blood glucose level are not consistent. It has been observed that sudden bouts of rigorous exercise, especially when they interrupt a sedentary life style or a period of inadequate insulin, can actually raise blood sugar. Extremely vigorous, prolonged exercise, such as mountain climbing under the extra stress of high altitudes, has likewise been observed to raise rather than lower blood sugars even with insulin adequate according to calculations and even with carefully prepared physical fitness (Oehler, *Diabetes Forecast*, 34(6), Nov/Dec 1981). It would appear that medical research is needed to continue efforts to describe the effects of exercise on diabetes under varying conditions.

Yet moderate and consistent exercise has been observed to lower blood sugar levels, to improve circulation, and to reduce stress. Resources for exercise programs follow.

Resources

Be Alive as Long as You Live: The Older Person's Complete Guide to Exercise for Joyful Living
by Lawrence J. Frankel and Betty Byrd Richard, 1980
Gentle exercise to be performed from standing, sitting, and lying positions to improve circulation, tone muscles, increase flexibility, relieve tension and stress.
Regional Library for the Blind
and Physically Handicapped
or
Library of Congress
Division for the Blind
and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542
(202) 882-5500 — Cassette: Order No.

The Diabetic's Sports and Exercise Book
by June Bierman and Barbara Toohey
New York: J.P. Lippencott Co., 1977
Effects of exercise on mind, body, insulin requirements, diet; exercise programs; coping with insulin reactions.
Sugarfree Center for Diabetics
5623 Matilija Avenue — Print
Van Nuys, CA 91401 — Price: $10.95
Also available in local bookstores, libraries.

Sports and Exercise for People with Diabetes
Selected Annotations, Prepared by the National
Diabetes Information Clearinghouse, Jan. 1981
Annotated bibliography of print materials, educational films, and research studies on exercise and diabetes.
National Diabetes Information Clearinghouse
805 15th Street, N.W., Suite 500
Washington, D.C. 20005 — Print
(202) 842-7630 — Price: Free

Techniques for Foot Care by the Visually Impaired Diabetic

by
Allene R. VanSon, R.N.

A commonly experienced medical problem with diabetes is impairment of the healing process which can result in infection, especially in the extremities since blood circulation there tends to be more restricted. For the diabetic, then, foot care can become essential.

The material below is designed to encourage independence and self-management of compulsory foot care for the visually handicapped person with diabetes mellitus. The text addresses the consumer and aims to give step-by-step instructions in foot care.

Not only is your body changing because you are growing older; you have diabetes. Diabetes affects your blood vessels and nerve endings, including those in the feet and legs. Normally, blood travels through the arteries and veins carrying nourishment and oxygen to the cells and removes waste products. But in time these blood vessels can become narrow and plugged or hard and stiff, losing their ability to move blood easily. The resulting decreased circulation to the feet and legs can lead to a variety of complications. When nerve endings are affected by diabetes, pain can occur in feet and legs, especially at night. But actual sensitivity is decreased, which diminishes the ability to monitor heat, cold, and pain quickly; therefore, burns, frostbite, and injury can occur without awareness. Also there is a tendency for calluses and toenails to grow hard and thick, and these changes can lead to additional problems. Together these factors can produce ulcers and injuries that do not heal easily; further, gangrene can develop and result in amputation of toes, feet, or legs. Attention to foot care is an essential step in helping to prevent these serious complications.

Things You Can Do to Protect Your Feet

Control your blood sugar. Use meal plan, medication, and exercise designed to help keep blood sugar levels between 60 and 120 mg. fasting.

Wash feet daily unless skin is dry; then wash every other day. Check temperature of water by putting a drop on inside of wrist. If drop feels warm, but not hot, water is ready for use. *Do not* soak feet because soaking dries the tissues by washing out natural oils.

Use mild soap containing oil or lotion; Tone soap or Dermassage lotion are good choices.

Use a soft washcloth to rub off the dry skin gently.

Pat completely dry, especially between the toes.

Lubricate the skin at night with creams or lotions.

Check the condition of your feet daily. Gently run your hands all over your feet and legs. Note andy changes in the skin, e.g., dryness, callus formation, or injury.

Wear clean socks or stockings (hose) to protect your skin from the shoes. Hose with holes or mends may cause an injury.

Make certain that shoes fit comfortably and are in good condition. Remember that sandals and open-toed slippers do not protect your feet. Always use your hand to check the shoe for cracks, rough spots or objects before placing the shoe on your foot. Always "break in" new shoes by wearing them for one to two hours each day, for one to two weeks.

Take action if an injury occurs:

Small cuts: Stop the bleeding, wash with warm water, cover with dry sterile dressing. Seek help.

Blisters: Do not open the blister. Cover with a dry sterile dressing. Seek assistance.

Small burns: Immediately place burned area in cold water. Cover with a dry sterile dressing. Seek help.

Larger cuts and burns: Seek help.

Foot or leg ulcers: Give *special* attention. Follow *all* medical advice for soaking the area or applying medication and dressings. Enlist someone—a friend, relative, medical professional, etc.—to view the area daily.

Prevent burns! Use warm socks instead of hot water bottles, heating pads, or direct contact with radiator to warm feet.

Wear warm, dry boots to prevent frostbite in winter.

Keep toenails trim. File with an emery board; follow the curve of the toe. First soak feet in warm water for five to seven minutes to soften the nails before filing.

Things Someone Else Must Do to Protect Your Feet

A podiatrist or family member can file, clip, or cut your toenails following the curve of the toe. You can reduce the number of times you need help by using the emery board weekly.

Your feet and legs must be viewed at least once each week; a more frequent inspection is desirable.

Corns and calluses must be removed by a podiatrist.

Injuries require medical assistance.

Things to Do to Improve the Circulation in Your Feet and Legs

Develop a daily walking program with your doctor's permission.

Increase the distance and the rate of walking gradually. Use the heel-toe method of walking.

Do not sit still for long periods of time. Move about frequently. Wiggle your feet and toes while sitting.

Do not cross your legs.

Do not wear constricting garments or garters. They restrict the blood flow.

Nicotine slows the blood flow to your feet and legs; therefore, you are encouraged not to smoke.

It is your responsibility to take care of your feet and legs and to seek help when you need it, before a problem develops.

Resource

Time Out for Foot Care (anon)
Minneapolis: Metropolitan Medical Center, 1977

This is an illustrated outline of the Buerger-Allen exercises designed to increase foot comfort and improve blood flow to and from the feet. Eight guidelines to good foot care are also given.

Diabetes Education
Metropolitan Medical Center
900 South Eighth Street
Minneapolis, MN 55404
(612) 347-4654

Price: $0.25; $2.50/12

The Role of the Rehabilitation Center in Serving the Diabetic Person

by
Laura Marletta, M.Ed.

Not addressing the issue of diabetic control with the visually impaired diabetic in a rehabilitation setting is overlooking a major component of that person's rehabilitation program. If the diabetic client is not under the best possible control, that individual will not be able to work to the best of his/her ability. Participation in a rehabilitation program requires a great deal of physical stamina and mental alertness. The person with diabetes cannot afford to be feeling "sick."

Actually, control of the disease should be sought before the person is sent to a rehabilitation center. This effort could be coordinated by the rehabilitation counselor. A complete physical examination is part of the vocational rehabilitation process. The counselor could request specific information and recommendations from the physician on diabetes control. "Is the individual motivated toward good control?" Most large hospitals offer diabetes training programs. If the prospective client has not attended such a program, or it has been a number of years since attendance, the counselor should request the client attend a program as part of the total rehabilitation program.

Diabetic clients are not always unwilling to attend classes on diabetes; however, transportation and participation in the classes can be problems for the visually impaired person. The counselor should assume responsibility for alleviating these problems. Some people may get defensive when asked to attend such a class and state they know everything there is to know about diabetes. "After all, I have lived with it all my life!" However, if the onset of diabetes was during childhood, much information was perhaps learned indirectly at home twenty odd years ago. Much information has changed since then and is constantly changing as new developments are made.

In the past, much of the more technical information was withheld from the patient for fear of overburdening or frightening him. I believe ignorance of one's disease is what causes fear. Accurate information can provide the individual with the freedom to control his/her disease—preventing the disease from controlling the person.

A good time to review what is known about diabetes control is when the visually impaired diabetic enters the rehabilitation center. This can be done by anyone on the rehabilitation team possessing up-to-date, accurate knowledge about diabetes. Questions can be asked informally. For example: "What caloried diet are you on?" "How many exchanges are you allowed at each meal?" "How do you adjust for high urine/blood glucose tests?," etc. A more formal questionnaire can be devised to pinpoint areas where more knowledge is needed, or any problems the individual might be having with control.

Diabetics enrolled in a center program should be requested to wear identification stating they are diabetic. Medic Alert is an excellent form of identification. Also, as a remedy for possible unconsciousness due to hypoglycemia—low blood sugar or insulin shock—the diabetic should carry some form of quick sugar at all times. These two precautions protect both the client and the center. Diabetics should be encouraged to continue these practices at home.

Blood glucose/urine testing is essential for the diabetic. This is where a staff nurse would be helpful to perform this test before each meal and at bedtime. For some diabetics this might be the first time blood glucose has been checked regularly, and this would give them an idea of what type of control they are maintaining. Additionally, for those diabetics who are regularly checked at home, this service should be continued while at the rehabilitation center. Some professionals feel we are imposing our values on diabetic clients when we demand that urine/blood glucose be checked. I do not view this procedure as imposing values, but providing an environment for maintaining good health. Would a visually impaired person be

allowed to travel outdoors without a cane while at the Center? The health risk is the same.

A diabetic who is not monitoring blood sugar/urine sugar levels has no idea what kind of control is being maintained. With the change in activity level while at the Center, insulin amount/diet may have to be altered. The only way to know how much is by testing. Many diabetics say to me "I know how my blood sugars are running by the way I feel." By the time the person starts to feel the effects of elevated blood sugar, the sugar level has been high for a while. Once blood sugar is elevated, it is much harder to bring it down. More importantly, the person runs the risk of going into acidosis (dehydration) and if untreated, diabetic coma, which is a life-threatening condition. On the other hand, running a consistently low blood sugar can impair judgment and impede the learning process.

An area where rehabilitation centers can really fall down in accommodating the diabetic is diet. The food that is often served in these institutions is not conducive to the diabetic diet and overall good control. Typically, the food is high in starch and sugar and low in fresh vegetable and fruit, lean protein sources and complex carbohydrate. A meal I was served at one such institution consisted of a large plate of spaghetti with meat sauce (very little meat and the sauce tasted sweet), garlic bread, a small salad, and cake. The meal was mostly starchy carbohydrate. A diabetic eating that meal would probably leave the table with an extremely elevated blood sugar. Rehabilitation centers must start serving more nutritious meals, which would be better for everyone. A diet rich in fresh or frozen vegetables (plain), complex carbohydrate such as whole grains and legumes, lean meats and fish and fruit is much better.

The rehabilitation teacher plays an important role in teaching the diabetic client good nutrition. Once a diet has been prescribed, the R.T. can review it with the client and go over what is included in the different exchange lists. The diet should be put in a form that is easily read by the client. Eventually the person should have the diet memorized. Reviewing portion sizes with tactile models is very helpful. For example, a three-ounce piece of chicken is about this big. The principles of preparing meals from scratch as opposed to relying on prepared foods is essential for the diabetic to maintain good control. (Many prepared/packaged foods contain high levels of sugar and salt.)

The R.T. also teaches the use of insulin measuring devices. This should be done in conjunction with a nurse to be sure the proper procedure is used. In my work as an itinerant rehabilitation teacher, I have observed many people, diabetics of long duration, incorrectly drawing up the insulin dose, particularly with a mixed dose.

In summary, if the rehabilitation center is addressing the areas of mobility, communications, personal hygiene, housekeeping, etc., is not management of health just as important? Actually, control of diabetes is necessary before anything else can be learned. The issue of striving for good control of diabetes is still debated by many physicians, so the confusion many diabetics have about their diabetes is understandable. However, more and more of the literature on diabetes points to the benefits of maintaining near normal blood glucose levels. People coming to the rehabilitation center have lost their eyesight; possibly, addressing the issue of good control can prevent further complications and prolong a more productive life.

Further Resources for Rehabilitation Teachers

Diabetes Teaching Guide
by George P. Kozak, M.D.
Boston: Joslin Diabetes Foundation, 1977.
Instructions for urine sugar testing, the diabetic diet, insulin use and administration techniques, symptoms of and remedies for hyperglycemia (high blood sugar) and hypoglycemia (low blood sugar), managing insulin and diet on sick days, etc. A revised edition planned for Fall 1982 will discuss home blood glucose monitoring. The text is written for newly diagnosed or recently hospitalized diabetics.
The Joslin Clinic
One Joslin Place
Boston, MA 02215 — Print.
(617) 732-2539 — Price: $4.00

Joslin Diabetes Manual, 11th Edition
Edited by L.P. Krall
Philadelphia: Lea and Febiger, 1978.
Information on diabetes including illustrations, charts, photographs.
Lea and Febiger
600 South Washington Square
Philadelphia, PA 19106
(215) 922-1330
and
The Joslin Clinic — Print.
One Joslin Place — Price: $8.50 (English)
Boston, MA 02215 — $13.50 (Spanish)
or
G.K. Hall
70 Lincoln Street — Large Print.
Boston, MA 02111 — Price: $24.75 (2 volumes)

Materials and Aids for the Visually Impaired Diabetic
Prepared by the National Diabetes Information Clearinghouse
July 1980
A bibliography of information on diabetes-related visual impairment, it lists 114 items in various media and includes devices with price and ordering information.
National Diabetes Information Clearinghouse
Box NDIC
Bethesda, MD 20205
(301) 496-7433 — Print.
(202) 842-7630 — Price: Free.

Special Devices and Equipment for the Visually Impaired Diabetic
Prepared by R. Keith Campbell
American Pharmacy
Washington, D.C.: American Pharmaceutical Association, 1981.
It evaluates some urine testing systems and magnifiers (as well as such technologically advanced aids as the Optacon).
Vision Foundation, Inc.
770 Centre Street
Newton, MA 02150
1-800-852-3029 — Cassette.
1-617-965-5877 — Price: $2.00

Teaching Guides for Diabetes Education Programs: Selected Annotations
Prepared by National Diabetes Information Clearinghouse
June 1979
A bibliography of materials which are instructional vs. simply informational, useful to health professionals in designing programs, or useful to patients and families as a study guide.
National Diabetes Information Clearinghouse
Box NDIC
Bethesda, MD 20205
(301) 496-7433 — Print.
(202) 842-7630 — Price: Free.

You, Your Eyes and Your Diabetes
by Donna L. Johnson
Winnetka, Illinois: The Hadley School for the Blind, 1981.
Written for the diabetic who is experiencing vision loss, the book provides information about the condition, diet, exercise, insulin management, and preventive medicine in diabetic control.
The Hadley School for the Blind — Jumbo Braille.
700 Elm Street — Large Print.
Winnetka, Illinois 60093 — Cassette.
1-800-323-4238 — Borrowed as part of
1-800-942-4193 (Illinois residents) — correspondence course.

Views of a Blind Diabetic

by

Davide Marletta, M.Ed.

I have been a diabetic for the last 27 years, legally blind, eight, and totally blind, three of the last eight. Much to the amazement of sighted, nondiabetics, I often think and say that I would rather be blind than diabetic. I guess the main reason for this attitude on my part is that I know what to expect from my blindness and have many aids and appliances to choose from to help me perform activities in both my personal and professional life. However, there seems to be much that still has to be learned about diabetes; the future, although promising, is still not definite. More and more of the literature these days seems to indicate that proper control of diabetes either prevents or minimizes complications. However, there still seems to be some disagreement over just what good control entails. Attitudes sometimes seem to change so fast that it is often difficult to stay on top of things. I can recall many years ago that I was instructed to spill sugar in the urine before going to bed in order to avoid insulin reactions during the night. Today, the emphasis is to stay as much within the normal range of blood glucose as possible. Although I am trying to do this, and have felt better for it, I still come across other diabetics and health and rehabilitation professionals who maintain that it is not possible for an insulin dependent diabetic to achieve near normal blood glucose levels or that reactions are to be avoided. Personally, I think that reactions once in a while are not bad; it indicates to me that my body is making full use of all the food that I am eating. (Of course, if reactions persist, then I must make some adjustments in either insulin or diet.)

Since what we know about diabetes today is more than we knew years ago, I cannot take all the blame for my diabetic retinopathy. However, I must admit that there was a good amount of cheating on my part. I think I was trying not to have my diabetes run my life; unfortunately, this took place through totally denying its existence rather than attempting to maintain proper control. Even after going through four months at a rehabilitation center, and learning how to use devices for measuring insulin myself, I blamed the diabetes for everything. At one point I actually believed that while I needed insulin to live, its constant use was also killing me; I thought that I had about five years left to live. With an attitude like that, it is no wonder that I continued to cheat knowingly.

It was at this point that I met two great women. One was the woman I would eventually marry; the other was the diabetic teaching nurse at the local medical center. I remember my girlfriend saying that she was glad to help me with my diabetes, but that it was my condition and I would have to accept some responsibility for it. Then, through the nurse, I learned that I was not dying and could live a good life if I would just take care of myself. The prospect of perhaps losing the woman I loved was the incentive I needed to try and get my act together. Although I thought none of this control business would work, I decided to give it a try. Surprise of surprises—I felt better, got good reports from my doctor, had better dental checkups. I began to get control of my actions and therefore my life. Today, I am happily married, successfully employed, get good medical checkups, and, in the last year, have become a father for the first time.

I am still striving for that sometimes unreachable goal: always having a blood glucose of sixty to one hundred twenty. However, in striving for it, I feel well, remain healthy and, surprisingly enough, find I have more freedom. That is, by knowing my diet, the exchanges, and how my insulin works, I find that I can make the necessary adjustments in an effort to maintain optimum control.

Admittedly, I do find that my diabetes is pretty constant on my mind. Now that I take three shots a day, I find I am very conscious of the time, so that I might take my shot at the proper time. When I eat out, I constantly am trying to figure out all the exchanges for that meal; sometimes this means not always eating exactly what I want. How nice it would be to go to a restaurant sometime and just pig out!

And, unfortunately, the issue of blindness and diabetes is not always so positive. To be honest, blindness itself is negative, even though with a lot of effort and support, it can be used in a positive manner. In my mind, diabetes is *never* positive. I see it as a potentially destructive disease. While more evidence points to good control being the key, who can say what the findings will be ten or twenty years from now? As if being diabetic was not enough, being blind on top of it makes it virtually impossible to be completely independent. At present, there are no devices available allowing me to draw my own syringes since I use low dose syringes; I have found no way that I can monitor either urine or blood sugars myself. For these things, I absolutely have to depend upon sighted help; fortunately, my wife is willing to do this for me. The idea that continuing to have elevated blood sugars might lead to even more complications is very frightening, to say the least. Because adolescence is hard enough, I dread the possibility of our son becoming a diabetic and having to deal with growing up in that context.

But, most significantly, I continue to be mostly optimistic that I can obtain good control and maintain it for the rest of my life; in the meantime, I feel great and just wish that they would hurry up and cure diabetes.

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About Contributors to Issue No. 6 of AAR

Ruth B. Carr, R.N. is Head Nurse of the Eastern Blind Rehabilitation Center, Veterans Administration Medical Center, West Haven, Connecticut. Part of her work is to teach the use of insulin gauges, needle guides, and vial holder in self-management of diabetic control with vision loss.

Brian Collins of Toronto, Canada is a student of nutrition. As a consumer with diabetic retinopathy, he shared with us his personal experience and evaluations of self-management of diabetic control with vision loss.

Richard M. Connors, M.Ed. is Supervisor of Community Services at The Carroll Center for the Blind, Newton, Massachusetts. He oversees the teaching of orientation and mobility in the community and is concerned with diabetic care and the teaching of self-management of diabetic control in the field of blindness rehabilitation.

Donna L. Johnson, instructor at The Hadley School for the Blind in Illinois, is the author of *You, Your Eyes and Your Diabetes*, the central text in a correspondence course for persons with diabetes and vision loss.

David Marletta, M.Ed. works in blind services as a personal adjustment couselor at the Maine Center for the Blind. His interest in and knowledge of diabetic control with vision loss is both professional and personal.

Laura V. Marletta, M.Ed. is Supervisor of Rehabilitation Teachers at the Maine Center for the Blind. Her previous publications include contributions to the Newsletter of Rehabilitation Teachers of the Northeast Chapter of A.A.W.B.

Judith W. Oehler, R.N., Ed.D. holds the position of assistant professor in the School of Nursing at the University of Wisconsin at Milwaukee. Dr. Oehler is the author of articles on diabetes appearing in professional and medical journals; most recently Dr. Oehler has been involved in the formation of a new publication, the *Journal of Opthalmic Nursing and Technology.*

Alice Raftary, M.Ed., Supervisor of Teaching, Greater Detroit Society for the Blind, is the author of the widely read and used manual *Modifications on Insulin Techniques for the Visually Impaired or Blind Diabetic*, from which her article in this issue was excerpted, with her kind permission.

Joyce Schulz, R.N., known for her previous articles on diabetic control with vision loss in such publications as the *Journal for Visual Impairment and Nursing*, teaches diabetes maintenance to clients at the Minneapolis Society for the Blind.

Allene R. VanSon, R.N. is associated with the Erie County Medical Center in Buffalo, New York where she teaches the self-management of diabetic control; she is the author of *Helping the Blind Measure Insulin* and another valuable manual, *Stop! Look! Listen!*, which gives instructions for diabetic foot care.

PRODUCTS & INFORMATION FOR THE VISUALLY IMPAIRED

by Robert S. Dinsmoor

Staying in good blood glucose control and seeing an ophthalmologist regularly is the best way to prevent diabetic retinopathy. But what happens after the damage has already occurred? Most people with retinopathy will only suffer slight visual loss, but even slight loss of vision can make life difficult. Fortunately, there are organizations to help with information and products.

Information

Many organizations offer resources and information for people with visual disabilities. The American Academy of Ophthalmology, for instance, has many educational materials, as education is crucial to living with visual impairment just as it is crucial to living with diabetes. In addition to education, the American Foundation for the Blind offers very specific information about publications and local resources for the visually impaired individual. Other sources of information include the National Association of the Visually Handicapped, the National Eye Institute, the National Association to Prevent Blindness, and Vision Foundation, Inc.

Training

If you are visually impaired, rehabilitation programs can be crucial to gaining independence. This training can help you to once again perform everyday tasks such as dressing, cooking, cleaning, getting around the house, traveling on the street, and finding employment suited to your needs. Visually impaired people with diabetes, with the help of the products mentioned in this article, can often learn to measure out and administer their own insulin injections and to monitor their own blood sugar levels. The American Foundation for the Blind publishes a very comprehensive directory of local services that specialize in this training. In addition, these agencies may often be found in your local telephone directory. Unfortunately, most third-party payers do not cover these services, but there is considerable variation from one insurance plan to another.

Books and magazines

Many national organizations have free "talking book" services in which they send you audio recordings of books, textbooks, magazines, and newspapers. Some companies also produce these items in large-print editions. These companies and organizations are listed in the table on pages 20 and 21. Another source of large-print books you should not overlook is your local public library.

Household products

Many different products are available that are specifically tailored to people with low vision or complete loss of vision. Many of them appear in a catalogue published by the American Foundation for the Blind, titled *Products for People with Vision Problems*. The scope and variety of these products is enormous:

- Some watches are available with tactual dials. The covers open, and the time can be determined by the location of the hands in relation to the raised dots at each hour. Other watches have large print for the person with low vision. The catalogue also offers tactual alarm clocks and even a digital travel alarm that "talks," announcing the time at hourly intervals.
- Pocket-sized "talking calculators" are now on the market, as well as desk-top calculators with large, easy-to-read displays.
- Tactilely labeled steel tape measures and caliper rules help to make carpentry possible. Saw guides and drill guides allow you to saw and drill accurately. Finally, for the professional carpenter, there is even a talking caliper that calls out the measurements.
- For writing, there are guides that slide down a notebook page, allowing legible writing. A drawing kit with special plastic paper allows you to draw or write raised lines that can easily be read by touch.
- Adaptations for the telephone allow for larger numbers that can be seen by a person with low vision.
- A "talking" paper money identifier can distinguish between $1, $2, $5, $10, and $20 bills and tells you the denomination of each bill.

Diabetes-related products

The AFB catalogue also features products to help the visually impaired individual with diabetes perform his own insulin injections. For instance, the "Magni Guide" can help you guide the needle into the insulin vial, and magnifies the entire length of the syringe for easy reading. Another item is an insulin syringe that "clicks" off the dosage 2 units at a time, allowing you to feel and hear your dosage.

For those who want to be in excellent blood glucose control, there is one talking blood glucose monitor currently available. Beta Scan, manufactured by Orange Medical Instruments in Costa Mesa, California (call 1-800-527-1151 for information) aids you in pricking your finger and getting the blood properly placed on the reagent pad. Then an electronic voice actually tells you the results of your blood test.

Games

A hand of poker, anyone? The AFB catalogue features braille playing cards and cards with large print. Books of crossword puzzles are also available with large print. Other available games include tactile and large-type editions of Monopoly and Scrabble, and tactilely marked board games such as Backgammon, Othello, chess, cribbage, checkers, tic-tac-toe, and dominoes.

This is by no means a comprehensive list of items available, but it demonstrates the vast variety of products tailored to visually disabled individuals. Through the use of specially designed products and rehabilitation with a skilled therapist, you can overcome many of the handicaps of visual impairment. □

Mr. Dinsmoor is Associate Editor of Diabetes Self-Management.

RESOURCES FOR THE VISUALLY IMPAIRED (LOW VISION)

GENERAL INFORMATION

AMERICAN ACADEMY OF OPHTHALMOLOGY
Public Education Program
1833 Fillmore - P.O. Box 7424
San Francisco, CA 94120
(415) 921-4700

AMERICAN FOUNDATION FOR THE BLIND
15 W. 16 St.
New York, NY 10011
(212) 620-2000

NATIONAL ASSOCIATION FOR THE VISUALLY HANDICAPPED
221 W. 21 St.
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AMERICAN JOURNAL OF NURSING

FOR VISUALLY IMPAIRED DIABETICS

BY MARILYN HERGET

Devices that help the client administer insulin and monitor glucose levels can mean the difference between dependence and self-reliance.

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Only two percent of diabetics are totally blind as a result of diabetic retinopathy. But many have visual impairment and fluctuation in acuity. For those who need insulin, the situation can be difficult.

Fortunately, many devices are on the market to help people with limited vision perform the complex tasks of taking insulin and monitoring blood sugar. Your familiarity with these aids, plus a little creativity, can make the difference between a dependent and an independent patient. After assessing the extent of a patient's visual impairment, one or several products can be considered. Types of commercially available devices are discussed here, and features of specific products are detailed in the chart opposite.

Syringe magnifiers. Devices that magnify the calibrations on an insulin syringe are useful for those who have slight visual impairment. Magnifiers make air bubbles easy to detect and help in teaching a new diabetic how to read the syringe. Ask your patients to bring their magnifiers to clinic or office appointments so you can make sure they are using them correctly.

Dose guides. Because insulin syringes vary slightly, each dose guide device must be used with the syringe it was set for. Some devices that assist with dose measurement must be preset by the health care provider. Those that are set by means of screws, such as the *Dos-Aid*, can loosen; their settings must be checked regularly.

Devices that require presetting are not useful to patients who mix insulins, unless two devices are used. In that case, the patient will need a method of differentiating the two dose guides; for instance, a braille letter taped to one device. A new product, Mixtard (Nordisk), which is a premixed vial of 30 percent regular insulin and 70 percent NPH, may be useful to certain patients.

Needle guides. An important aspect of syringe filling is the ability to insert the needle into the vial's diaphragm without contaminating, bending, or dulling the needle. Without an assistive device, the visually or manually impaired—and many children—will hit the metal casing surrounding the diaphragm. A needle guide alone will help some patients. But if the patient tends to hit the side of the needle guide, a combination needle guide-syringe/vial holder will be better.

Vial and/or syringe holders. These are most useful to patients who have unsteady hands, the use of only one hand, or severe neuropathy. For the visually impaired, however, a number of devices combine a holder with a dose gauge or needle guide.

Insulin administration tips. A major problem for the visually impaired is determining when the insulin vial is nearly empty. Underlying that concern is the possibility that the patient will draw up air instead of insulin. Reassure the patient that tiny air bubbles are of no significance. It also helps patients to know that if they were to inject air instead of insulin the air itself would not be harmful; the harm lies in not getting insulin. To keep an accurate count of the doses of insulin in the vial, I recommend that patients place in a container as many coins as there are doses in the vial. Each time they remove a dose of insulin, they also remove a coin. When two coins remain, the vial should be discarded. Discarding the bottle with insulin in it ensures that the patient will not draw up air.

To aid in injecting insulin, I teach visually impaired clients to stabilize the hand that holds the syringe by resting little finger about an inch below the injection site. I also recommend they use areas that do not require aspiration: the abdomen and outer thighs.

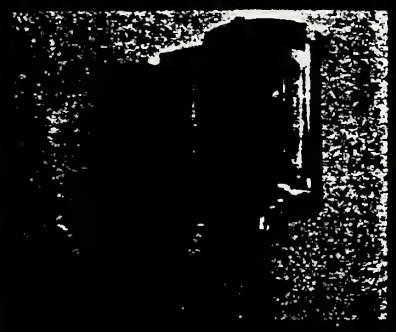
HELP WITH MONITORING

For urine testing, the Uricator (described in the chart) buzzes to indicate the level of sugar.

For blood glucose monitoring, visually impaired patients can use Chemstrip bG to obtain a retrospective pattern. The patient performs the test at designated times, and a sighted person, possibly the health care provider, reads the results later, using a color chart or the Accu-Chek bG meter. Chemstrips can be read accurately for up to seven days, as long as the used strips are stored in a dark, air-tight container. Other test

Marilyn Herget, RN, MSN, is the diabetes education program coordinator at Hillcrest Hospital, Mayfield Heights, Ohio.

PRODUCTS AT A GLANCE

Insulin-Aid 	STABILIZES VIAL. Plexiglass case attached to a strong magnet. Can be used with a syringe magnifier. Vial is inserted into case, and case is turned upside down and attached to a metallic surface (e.g., refrigerator) at convenient height. Vial's diaphragm protrudes through an opening at the bottom. The hand holding the syringe can be braced against the refrigerator for further stability.	$8.98	Seabee Corp. P.O. Box 457 Hampton, Iowa 50441
Medi-Jector 	ADMINISTERS INSULIN. Jet injection device eliminates the need for needle and syringe. The Medi-Jector is loaded with a vial of insulin. Dosage scale, available in braille, is preset. Insulin is delivered in a fine, pressurized stream. Operation requires a steady hand to position device and hold it in place for about 10 seconds. Although expensive, third-party reimbursement is often available. Tax-deductible; cost would, in time, be offset by elimination of syringe purchases. About 7 inches (17.8 cm) long, 22 ounces (624 gm). Sterilize once a month. Not recommended for those who mix insulins. Main advantages: less tissue damage, consistent delivery of precise dose. Can be operated with either hand, increasing number of accessible injection sites.	$875.00	By prescription only. Derata Corp. 7380 32nd Ave. N. Minneapolis, Minn. 55427
Uricator 	BUZZES TO INDICATE URINE GLUCOSE LEVEL. Designed to be used with Tes-Tape. Patient turns on the Uricator, dips the Tes-Tape in urine and holds tape in the air until Uricator buzzes at 60 seconds. Tape is then placed into a slot, and patient pushes buttons on the machine from left to right: Buzz at first button means little or no sugar in urine. If there is no buzz from the first, the second is pushed; a buzz then indicates 0.1 percent sugar. No buzz until fourth button indicates 0.5 percent or more sugar.	$135.00	SFB Products (Wayne) Box A Southeastern, Pa. 19399
T-49 Talking Glucometer 	"ANNOUNCES" BLOOD GLUCOSE LEVEL. Ames Glucometer, Model #5580, has been adapted to "talk." Measures blood glucose and "announces" amount of glucose in mg/dl. Learning to place blood sample onto the test strip paddle takes practice.	$595.00	SFB Products (Wayne) Box A Southeastern, Pa. 19399

PRODUCTS AT A GLANCE

Insulgage 	MEASURES INSULIN DOSE. Hard plastic gauge; dose marked in large print, raised numbers, or braille. Length of gauge corresponds to length of plunger when pulled to correct dose. Dose must be specified when ordering, because gauges are made to order. One end of gauge clips onto plunger; when proper dose is drawn up, the rest of the gauge slips firmly between barrel and plunger to stop the plunger. By using two gauges, patient can vary dose as well as prepare a mixed dose. Can be ordered to fit either B-D or Monoject syringes.	Depends on how labeled: $3.50 – large print $4.00 – braille $4.50 – raised numbers	Meditec, Inc. 9485 E. Orchard Dr. Englewood, Colo. 80111
Needle Guide 	GUIDES NEEDLE. For those who have difficulty seeing and puncturing the diaphragm. Aluminum, funnel-shaped cap fits Lilly insulin bottle and guides needle into diaphragm.	$1.50	Product #6 MES 166 American Foundation for the Blind 15 W. 16th St. New York, N.Y. 10011
Holdease 	GUIDES NEEDLE AND STABILIZES SYRINGE AND VIAL. Aids manually as well as visually impaired. Insulin vial snaps into one end of holder, and syringe snaps into the other. Cap is then removed from the needle, and syringe is pushed toward vial until needle penetrates diaphragm – holding syringe and vial firmly together. Fits Lilly and Squibb vials and all disposable insulin syringes. Can be used with the Insulgage or a magnifier.	$9.75	Meditec, Inc. 9485 E. Orchard Dr. Englewood, Colo. 80111
Dos-Aid 	MEASURES INSULIN DOSE, STABILIZES SYRINGE AND VIAL, AND GUIDES NEEDLE. Used with 1cc disposable syringe. At one end, a bottle carrier holds the vial; at the other, a plunger stop is set according to the length of plunger when dose is drawn up. Settings should be checked from time to time by sighted person. Patient places capped syringe into the syringe slot and pulls plunger back to the plunger stop. Then, needle cap is removed, insulin vial placed in bottle carrier, and bottle pushed forward until it stops. Air is injected, and plunger pulled back until it hits plunger stop.	$17.85	Product #6 MES 563 American Foundation for the Blind 15 W. 16th St. New York, N.Y. 10011

strips do not have this stable end point.

As described in the chart, one "talking" blood glucose analyzer is available; others are on the way. In addition, Orange Medical Instruments in Costa Mesa, California, produces BetaScan Audio, which indicates blood sugar by a buzz system.

Glucose-testing tip. Applying the drop of blood to the reagent pad on a test strip is a problem for the blind person. To solve it, bend a supply of strips just below the reagent pad without touching the pad. After obtaining a drop of blood with an Autolet, the patient can lay the pad across the index finger of the hand not punctured, place the blood on the pad, and time the test with a braille watch or use the meter's timing mechanism.

Future directions. The availability of blood glucose monitoring methods for the blind will enable blind patients to use an insulin pump when medically indicated, eliminating the need to fill syringes. Parker Hannifan in Irvine, California, is now field testing the Micropump, an insulin pump that measures 2¾ × 1¾ × ⅝ inches. The pump, which should be on the market in 1984, uses a prefilled disposable reservoir containing, on average, a 15-day supply of insulin.

To solve the problem of inserting the needle that attaches to the insulin pump, Autosyringe in Hooksett, New Hampshire, has developed the SubQSet. It consists of a 27-gauge needle attached at a 90 degree angle to a circle of clear plastic that has adhesive on the side that attaches to the skin. With this device, a blind person would have no difficulty inserting and securing the needle at the proper depth and angle in the abdominal subcutaneous tissue. Tubing attached to the needle is then attached to the insulin pump.

There are many devices to assist the visually impaired diabetic. Some are more helpful than others. It is important that equipment manufacturers, health care providers, and associations for the blind continue to refine the aids and to adapt advances in diabetes care, such as the insulin pump, so that the visually impaired diabetic patient can be as independent in managing his diabetes as any other patient.

Bibliography available on request.

PRODUCTS AT A GLANCE

Syringe Magnifier 	MAGNIFIES PART OF INSULIN SYRINGE. Clear plastic, clips on. Two sizes available: One fits disposable insulin syringes, the other, glass syringes with barrel diameter of up to ⅜ inch (1.0 cm).	$4.00 each; $33.00 a dozen	Cemco P.O. Box 21 Scandia, Minn. 55073
C-Better 	MAGNIFIES PART OF INSULIN SYRINGE. Snaps on, doubles size of calibration print. Fits both 1cc and ½ cc syringes. Does not require sterilization, but can be boiled in water, soaked in alcohol, or washed in soap and water.	$5.00 each; discounts on orders of six or more.	Tri-County Rehabilitation Center 4461 S.E. Federal Highway Stuart, Fla. 33494
Char-Mag 	MAGNIFIES ENTIRE SYRINGE. Snaps onto 1cc B-D or Monoject disposable syringe. Magnification of entire barrel especially useful to those who must mix two types of insulin.	$4.80 each; discounts on orders of six or more.	Char-Mag Co. of Glendale, Inc. 6026 N. Apple Blossom Lane Milwaukee, Wis. 53217
Magni-Guide 	GUIDES NEEDLE AND MAGNIFIES ENTIRE SYRINGE. Insulin vial slides into a recessed area at the top of Magni-Guide. To puncture vial, user removes needle cap, inserts insulin syringe (either 1cc or ½cc) into trough at the back of magnifier, and slides syringe forward until needle penetrates diaphragm. Can be cleaned with soft cloth, mild soap, and warm water, but not immersed, because water may penetrate magnifier.	$4.39	Becton Dickinson Consumer Products Rochelle Park, N.J. 07662



HOSPITAL FORMULARY
experience briefs

Hospital Formulary Experience Briefs contain information, reports of experiences, descriptions of programs, and other ideas that have been useful for P&T Committees and Departments of Pharmacy Services in the support of their P&T Committees. Many have been adapted from bulletins and newsletters, while others are abstracted from presentations, press releases, and personal communications to the editor. We invite our readers to submit bulletins, press releases, and other information for consideration as an experience brief to Arthur G. Lipman, PharmD, Editor, Hospital Formulary, Department of Pharmacy Practice, University of Utah, Salt Lake City, UT 84112.

Diabetic aids for the visually impaired

The Regional Informer, the Bulletin of the Regional Drug Information Center, Mercy Hospital Medical Center, Des Moines, contained a listing of aids for visually impaired diabetic patients in March 1982. More recently, that center updated the list. This information can be very helpful to diabetic patients and their health care providers.

Diabetic retinopathy is a significant manifestation of diabetes mellitus, which can prove to be a significant handicap to the patient. A variety of commercial products are available to aid visually impaired diabetics. These aids are designed to allow the insulin-dependent diabetic to remain as independent as possible. The following is a list of products and their suppliers. For more information regarding specific details, including patient suitability, cost, or availability, contact the supplier.

Dos-Aid Syringe Filling Device: facilitates penetration of insulin vial with the needle and withdrawal of a preset amount of insulin into syringe. $17.95

Cornwall Holder for Insulin Syringe: built-in spring withdraws preset amount of insulin in syringe. Used with glass syringes only. $17.50

American Foundation for the Blind
15 West 16th Street
New York, NY 10010
(212) 620-2000

IDM: plastic gauge used to measure preset quantity of insulin, inexpensive enough to use two for mixing insulins. In quantities of 5 to 50: $2.50 ea. + $1.00 postage & handling.

Attn: Linda Strauss
Novacor Medical Corp.
7799 Pardee Lane
Oakland, CA 94621
(415) 568-8338

Char-Mag Magnifier: clips onto all disposable syringes to magnify full length of barrel. $4.80 ea.; $4.00 for 6 to 36; $3.00 for > 36.

Char-Mag of Glendale, Inc.
6026 N. Apple Blossom Lane
Milwaukee, WI 52317
(414) 962-6059

Magnifier: clips onto all disposable and glass syringes to magnify full length of barrel. Private $4.00 ea.; institution $3.00 ea. for more than 2; $33.00 dozen.

Cemco
Box 21
Scandia, MN 55073
(612) 464-3181

Inject-Aid Syringe/Vial Holder: facilitates withdrawal of a preset amount of insulin into syringe. $5.50

Vial Center-Aid: facilitates penetration of the center of the diaphragm of the vial. $3.00

George Wright Industries
82 West Lake Shore Dr.
Lincoln, NE 68525
(402) 474-0177

"C-Better" Snap-On Magnifier: clips onto syringe to magnify the barrel scale 2.5 times. $5.00

Tri-County Rehabilitation Center
4661 Southeast Federal Highway
Stuart, FL 33454
(305) 287-7600

Insulgage: plastic guide fits onto the syringe plunger to position for a preset insulin dose, can use to mix insulins. Currently fits only B-D syringes. Comes in unit divisions: even numbers or multiples of 5. Number of units printed on Insulgage: ½-inch ink printed letters $3.50 ea.; braille printing $4.00 ea.; raised numbers $4.50 ea.; combination of braille and raised numbers $5.00 ea.; $10.00 shipping and handling per order.

Holdease: needle guide and syringe/vial holder to stabilize the syringe/vial unit. $9.75

Meditec, Inc.
9485 E. Orchard Dr.
Englewood, CO 80110
(303) 771-4863

Mega-Diastix: dip and read urine glucose test with large strips and test area, as well as larger printing

and color chart. $9.95
Miles Laboratories, Inc.
Specialty Products
Elkhart, IN 46515

Syringe Scale Magnifier: clips onto syringe to optically double the size of the scale on the barrel. Suggested retail price $1.98. Must be purchased through local wholesale house.
Monoject Division of Sherwood
Medical Dept. T.I.
1831 Olive Street
St. Louis, MO 63103
(314) 621-7788

Injector-Aid: does not facilitate syringe filling, but does aid injection. $9.95
Support System Corp.
P.O. Box 88687
Atlanta, GA 30338
(404) 393-1727

PRESLEY M. JOHNSTON, PharmD
Director, Drug Information
Mercy Hospital Medical Center
Des Moines, IA

Comparison of transdermal nitroglycerin products

The introduction of new, transdermal dosage forms of nitroglycerin provides greater flexibility in the management of pain associated with angina pectoris. In 1982, the Department of Pharmacy at Mount Carmel Medical Center reviewed nitroglycerin dosage forms in the hospital Drug Information Newsletter. *The following table is abstracted from that review. Prices reflect June 1982 listings.* □

Table. Nitroglycerin dosage forms

Product	Nitroglycerin ointment	Nitro-Dur		Transderm-Nitro		Nitrodisc	
Manufacturer	Marion Labs (Nitro-Bid) and Kremers-Urban (Nitrol)	Key		Ciba		Searle	
Sizes*		10 cm²	20 cm²	10 cm²	20 cm²	8 cm²	16 cm²
Total NTG content	Dose ruler is 50 cm² 15 mg/inch	51 mg	104mg	25 mg	50 mg	16 mg	32 mg
NTG delivered per cm²/day		0.5 mg	0.5 mg	0.5 mg	0.5 mg	1.4 mg	1.4mg
NTG delivered per day		5 mg	10 mg	5 mg	10 mg	5 mg	10 mg
NTG delivered per hour		0.21 mg	0.42 mg	0.21 mg	0.42 mg	0.21 mg	0.42 mg
Cost per day†	$0.16	$0.69	$0.69	$0.78	$0.78	Unavailable	
Cost per month†	$4.96	$21.39	$21.39	$24.18	$24.18	—	—
Advantages	Inexpensive; well studied; easy dose titration.	Once a day dose; currently readily available to outpatients.		Once a day dose; patch is marked with drug name and strength; small, flesh-colored bandage; membrane-controlled release.		Once a day dose.	
Disadvantages	Messy; requires multiple doses per day.	Expensive; bandage surrounding patch is very large and bulky.		Expensive; currently not available to outpatient pharmacies.‡		Expensive; currently not available from manufacturers.	

* Size refers to area of nitroglycerin patch in contact with the skin. All products have an outer covering that makes the patch larger. Additional sizes and strengths are to become available in the future.
† Cost is calculated based on hospital pharmacy acquisition cost. Cost for nitroglycerin ointment is based upon use of 1 inch every 6 hours.
‡ Announced 6/82 that Transderm-Nitro-5 would be available.

DONALD W. BENNETT, BS
BRITT A. COMMINS, BS
Mount Carmel Medical Center
Columbus, OH

Accurate Measuring Of Daily Insulin Doses:

Aids For The Blind Diabetic

Michael S. Kappy, M.D.

Blindness occurring as a complication of diabetes mellitus is the leading cause of blindness in the United States.[1] It affects 7 percent of all diabetics,[2] or an estimated 250,000 people.

Recently, one of our new patients, a 28 year old blind female diabetic expessed the desire to be able to draw up her own daily insulin dose. She stated that her usual daily dose was 25 units of NPH insulin, but that she occasionally took 20 units when she exercised more than usual. With this regimen, she had been able to avoid both hypoglycemic episodes and excessive glycosuria. Her husband or her mother would prepare her dose for her each day. On occasion, she would exhibit ketonuria when ill, and would require small additional doses of Regular insulin during the day.

A search for a device which would give her the independence she wanted uncovered several of them which have been developed to enable blind and partially-sighted diabetics to accurately administer their own insulin, either singly or as a mixture of two insulins.

The Andros, Inc. (2332 Fourth St., Berkeley, CA 94710) IDM® is a thin plastic strip which may be cut off by the physician to the length which corresponds to the desired dose, e.g. 40 units (Fig. 1a). The patient fits the projection on the syringe into the groove in the plastic, and by withdrawing the plunger slightly beyond the cut end and then pushing it back to the cut end (Fig.1b) any accidental air in the syringe is injected back into the bottle, and the correct insulin dose remains in the syringe.

The Andros IDM® is available only for use with U-100 insulins and Beckton Dickinson (B-D) #8409 Plastipak® syringes. Some degree of flexibility of doses for single insulins or mixtures of insulins in the same syringe could be provided by giving the patient several strips, each cut to a different length, but the strips would have to be marked in some way (e.g. notches cut into them) for the patient to identify them, especially if their lengths were not greatly different. The strips cost approximately $2.50 apiece, and should be replaced every three months according to manufacturers instructions. Thus, the cost to a patient who needs two or three of these would be approximately $25.00 yearly (as of 10/77).

The Insulgage® system by Meditec, Inc. (9485 E. Orchard Dr., Englewood, Colorado 80110) is a series of marked plastic gages each cut to a length corresponding to an insulin dose. The patient fits the plunger of the syringe into the slot in the gage (Fig.2a) and withdraws insulin to a point slightly *beyond* where the top of the gage fits against the syringe (Fig. 2b), and then pushes back until a snug fit is achieved, thus, expelling any air bubbles and insuring the correct insulin dose.

The Insulgages® provide for flexibility of doses for single or mixed insulin regimens, and are well-marked for identification by fingertip (unit numbers are also available in Braille). Sets of Insulgages® are available for U-40, U-80, or U-100 insulins, and the B-D #8400 series Plastipak® syringes, or the Jelco #1022 syringe (U-100 only). There are about 45 different gages available, from 2 to 85 units. Sets of 1, 2, 3, 5, 8, and 12 gages are available, and are reportedly "permanent." A set of three different gages (raised numbers) is $10.00 (as of 10/77).

The descriptions provided here are by necessity incomplete. Detailed descriptions of these or other devices,[2,3] as well as specific directions for their use should be obtained from the manufacturer listed for each device, or from the following sources: 1) Arizona Diabetes Association, 555 W. Catalina Dr., Phoenix, Az. 85013, 2) Minneapolis Society for the Blind, 1936 Lindale Avenue South, Minneapolis, Minnesota 55403, 3) American Foundation for the Blind, 15 W. 16th Street, New York, New York 10011, and 4) Hypoguard Ltd., 49 Grimston Lane, Trimley, Ipswich Suffolk England IP10 OSA.

Several methods are available to the patient to estimate the amount of insulin left in a bottle, e.g. by shaking the bottle or by keeping track of doses used with marbles in a cup, etc. Our patient, taking 25 units of NPH insulin daily, could avoid accidentally drawing up excessive air and thus decreasing the actual insulin drawn, by starting a new bottle on the first day of each month.





Figures 1a and 1b — The Andros IDM® Device.

Patients with chronic illness should be encouraged to retain as much independence as possible for reasons of self-esteem and for times when they may be temporarily without help. Devices such as those described above are means whereby the blind diabetic may do just that.

ACKNOWLEDGEMENTS

The author would like to thank Mr. William Woods and Dr. Emanuel Furst of the Division of Biomedical Engineering, University of Arizona Health Sciences Center, but especially Ms. Phyllis Richardson for help in evaluating the aids mentioned.

From: Department of Family and Community Medicine, and the Department of Pediatrics, University of Arizona College of Medicine, Tucson, AZ. (Dr. Kappy, Assistant Professor of Family and Community Medicine and Assistant Professor of Pediatrics.) Reprint requests to MSK, Department of Family and Community Medicine, Arizona Health Sciences Center, Tucson, AZ 85724.



Figures 2a and 2b — The Meditec Insulage® Device.

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Letters and Commentary

Help for Visually Impaired

We were very pleased to see the paper "Promoting Independence and Diabetes Self-Management in the Visually Impaired: A Model Program" in the Team Approach section of the January 1988 issue (TDE 1988;14:51–54). As the number of individuals with vision impairment secondary to diabetes continues to grow, it is essential that health care and rehabilitation professionals become more aware of the issues involved in diabetes self-management for this population, as well as the techniques and resources that can facilitate independence and self-care.

★ ★ ★

The National Task Force on Diabetes and Vision Impairment, sponsored by the American Foundation for the Blind, has been established to integrate the expertise of medical professionals with that of rehabilitation professionals in the field of vision impairment. The major goals of the task force are:

1. to create increased awareness and understanding among both professions regarding the needs of persons with diabetes and vision impairment,
2. to establish networks for dissemination of resource information,
3. to promote development of programs and technology that will facilitate self-care.

The task force feels that a current priority is development of an adequate glucose monitoring system that can be used accurately and independently by a visually impaired individual. We would like to submit the following recommendations for the design of an ideal glucose monitoring system that utilizes currently available technology in meeting these requirements.

Strip Features

Overall, we recommend a product that assists in obtaining an adequate blood sample.

Preferably, the device/product would provide auditory feedback when an adequate sample is obtained and, in addition, would tell the visually impaired user when too little or too much blood was obtained.

Tactile or auditory feedback should be given when locating the position for the placement of the droplet on the strip.

Consistent packaging is recommended so that visually impaired users can anticipate pad location when removing strips from the container.

Strips should have tactile markings such as indented or raised dots so that visually impaired users can easily locate the pad.

Since the pads are sometimes easily destroyed or removed by the blotting/wiping process, a more durable pad is desirable. Optimally, a system that eliminates the blotting/wiping process is desirable.

Monitoring System Features

Glucose monitoring systems for use by the visually impaired should have an audible on/off message.

Clear speech output, rather than tones, are recommended to indicate timing sequences, high/low readings, low battery, and functional indicators.

When a high or low glucose reading is announced, it is desirable to clarify specific numbers, such as "below 20" or "above 400."

It is desirable to have speech output indicating such problems as error in strip placement, inadequate sample, damaged/outdated pads, dirty aperture, or temperature of machine error.

A reminder to turn off the meter after operation would be very helpful.

It is desirable to have a strip aperture that is easy to locate and a strip insertion that is foolproof.

There should be no chance of accidental contact with other functional portions of the monitoring system (such as the on/off switch) during operation.

Tactually identifiable operating controls are desirable.

Instructions should be available in adapted form. Cassette instructions should be a priority; large print and braille versions would be helpful.

A larger, bolder digital display would be helpful to users with low vision.

Quality control ranges for the quality control strips or solutions should be specified in the adapted instructions.

Bottles, vials, and packages should be boldly and tactually marked (different shapes or tactual marks on the tops would suffice).

In addition, quality control paddles or strips should be tactually marked.

The strip-reading aperture should be easily accessible for cleaning.

Because many persons with diabetic retinopathy have fluctuating vision, ranging from near normal to nonfunctional, conventional meters that are easily adapted for speech output are desirable. This feature will also help to solve the problem of the need for a new adapted meter shortly after the purchase of a conventional meter. Third-party payments are seldom available for the purchase of several meters.

We commend *TDE* for recognizing the special needs of persons with diabetes and vision impairment. We hope more attention will be focused on these issues in the future and that other experiences and recommendations for provision of services will be forthcoming.

—Nancy Barger, RN, CDE
—Marla Bernbaum, MD
—Margaret Cleary, MS, RN, CDE

Letters should be addressed to the Editor: James W. Pichert, PhD, 315 Medical Arts Building, Vanderbilt University, Nashville, TN 37232. An award of a retractable pointer may be made at the Editor's discretion for a well-written letter, designated by three stars. Awards are made only to AADE members and only to the first author. An award does not necessarily indicate agreement or disagreement with the writer's views.

—Ruth Ann Petzinger, MS, RN, CDE
—Susan Ponchillia, EdD
—Lynne Luxton, MA
National Task Force on Diabetes and Visual Impairment
American Foundation for the Blind, Inc.
New York, New York

CDEs in 1988: A Two-Year Progress Report

In 1986, with the support of AADE, the National Certification Board for Diabetes Educators (NCBDE) developed and published the eligibility criteria for a certified diabetes educator (CDE). In October 1986, 1,248 diabetes educators met the eligibility criteria and passed the certification examination to become the first cohort of CDEs in this country. In April 1987, 699 diabetes educators achieved certification and, in October 1987, an additional 573 individuals were certified. To date, five certification examinations have been administered to eligible diabetes educators, with examinations given twice yearly in April and October. In this report, we summarize information available from the first three certification examinations—October 1986, and April and October 1987—to provide a progress report on the status of CDEs in 1988.

In the first three examinations, applicants represented a broad range of health care professions. RNs, RDs, exercise physiologists, social workers, pharmacists, psychologists, podiatrists, physicians, and registered physical and occupational therapists participated in each of these examinations. While RNs have continued to make up the majority of candidates, with RDs composing the second largest subgroup, the proportion of health care professionals other than nurses and nutritionists successfully completing the requirements for CDE has been progressively increasing. Fig 1 demonstrates the wide applicability of CDEs by demonstrating the varying academic degree achievements of the applicants. The largest proportion of candidates at each examination, approximately 70%, have earned baccalaureate or master's degrees. However, there has been a small increase in both associate level degrees and doctoral degrees over time.

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Independent Glucose Monitoring by Functionally Blind Diabetics

S.V. Ponchillia; S. LaGrow

Abstract: Self-monitoring of blood glucose levels is the preferred practice for diabetics who wish to control the disease through diet and medication. However, some persons are not able to perform this task independently because of severe vision loss. Glucometers (devices to measure blood glucose levels) with an auditory output may prove to be a viable alternative for these persons. The purpose of this study was to determine if functionally blind diabetics could indeed monitor their glucose levels independently using a talking glucometer. Although results indicate that this is possible, some individualized instruction is needed to ensure adequate coverage of the test strip and, therefore, accurate glucose readings.

Diabetes, one of the leading causes of adventitious blindness in the United States, is a serious, chronic condition characterized by a relative lack of insulin action. Glucose cannot pass through the walls of the blood vessels to the body tissue without insulin (Van Son, 1985). As a result, blood glucose levels rise. Elevated glucose levels pose serious health risks, especially to the diabetic.

Glucose levels may be maintained within normal limits by balancing food intake, exercise, and amount of insulin injected (Connors, 1982). This delicate equilibrium depends upon careful and accurate monitoring. Once done on a monthly or bimonthly basis by physicians, diabetics can now monitor their own glucose levels. Self-monitoring allows for daily therapeutic adjustments for increased control (Sonksen, Judd, & Lowy, 1978).

Self-monitoring may be accomplished in one or two ways: 1) comparing test strips to a color chart, or 2) using a glucometer that relies upon reflectance colorimetry to provide a digital readout of the result (Moss & Delawter, 1986; Oehler, 1982). In either case, a drop of blood is placed on a chemically treated test pad and the resultant color change on the pad is compared to standard hues. Both methods provide adequately accurate readings (i.e., within 10% of laboratory test results) if done properly (Clifford-Jorgensen, et al., 1986; Moss & Delawter, 1986; Villeneuve, Murphy, & Mazze, 1985).

Until recently, however, self-monitoring has not been feasible for persons with extremely limited vision. The availability of talking glucometers (i.e., self-blood glucose meters with electronic voice) may lead to greater independence in diabetic control for this population as well. Therefore, the purpose of this study was to determine if functionally blind diabetics could accurately monitor their own glucose levels when using a talking glucometer. To answer this question, we first had to find an acceptable method for applying blood to the test strip. As a result, two experiments were conducted. The first was designed to determine the best method for placing a droplet of blood on the test pad. The second was run to determine if functionally blind persons could accurately perform self-monitoring of blood glucose levels with talking glucometers using manufacturers' instructions only, or if some training was required.

Experiment 1

The need to accurately and completely cover the pad on the test strip with a droplet of blood before inserting the strip in the glucometer for a readout could prove to be a problem for functionally blind persons (T. Buckley, personal communication, September, 1986). There seem to be at least three ways to go about accomplishing this goal. The first and probably most likely to be tried by blind persons is a tactual method. In this case, no aid is used. The target is tactually located and marked using the pad of the finger. In addition to this strategy, there are two devices on the market: 1) the Orange Medical Instruments (OMI) Strip Guide and 2) the Accudrop Blood Placement Guide which may be helpful in accomplishing this task. These devices were selected for evaluation here because they are specifically designed for use by persons who find this task difficult. The purpose of this first experiment was to determine which of these three provided the most complete coverage when used nonvisually.

Method

Subjects

Two sighted rehabilitation teachers familiar with self-monitoring of blood glucose levels were used as subjects. Both were very familiar with methods of tactual exploration and had fairly extensive experience using these methods while occluded. They performed all tasks for this experiment while blindfolded.

Procedure

The subjects were seen one at a time by the first author. They were blindfolded and provided with glucose test strips, sterile cotton, isopropyl alcohol, and automatic lancing devices. They were told that they would be asked to place a droplet of their blood on test strips under one of three conditions: 1) no device or aid (i.e., tactual method), 2) the Accudrop positioning device, and 3) the OMI Strip Guide. The order and number of times each aid was used was dependent upon the requirements for establishing experimental control. This was accomplished with the alternating treatment design. This design was selected because it avoids many of the interferences and internal validity problems associated with other multitreatment designs, while still permitting a comparison of two or more interventions (Tawney & Gast, 1984).

Baseline was established using no devices. This (i.e., tactual) method was used to establish baseline because it requires no special materials or knowledge of where to find these materials, and is the strategy which functionally blind persons would be most likely to try initially. The subjects were asked to provide a droplet of blood on the treated pad of the test strip. They were asked to do their best to ensure total coverage of the pad. Each trial was considered to be a complete session.

The strip was examined at the end of each trial to determine the percent of

coverage. Each pad was then classified as falling within one of four levels of coverage:

- 100 percent coverage, the pad was readable and was totally or nearly totally covered;
- 75 percent coverage, the pad was readable with a clean, solid droplet covering at least 75 percent of the center of the pad;
- 50 percent coverage, no longer reliably readable, approximately half of the pad covered, some red blood cells present; and
- 25 percent coverage, scantily covered with less than half the pad covered, red blood cells clearly visible.

Observers were instructed to select the most representative classification. The subjects were thanked after each session; however, no feedback was provided concerning the degree of coverage attained.

Baseline conditions were kept in effect for the first three sessions. After that, the two devices were added so that each session consisted of a single trial using no device, using the Accudrop, and using the OMI Strip Guide. The Accudrop (Boehringer Mannheim diagnostics, catalog #00522) is a plastic device in which the test strip is placed. A "bridge" clamps down over the test strip, securing it to the device. The bridge also serves as a place holder for the finger after piercing. A plastic pointer extends down the bridge to guide the droplet directly onto the pad. The OMI Strip Guide is a flat piece of plexiglass with a "wall" along which the lanced digit is placed. Five small screws serve as posts to position the strip and guide the fingertip down over the pad of the strip. The posts also serve to help release the droplet.

The instructions remained the same during this phase; however, feedback was now provided concerning the degree of coverage attained after each trial. The devices (as well as the no-device condition) were presented in a randomly alternating fashion within every session of this phase.

Baseline sessions were begun with the two subjects after the observers were trained and reliability was established.

Reliability

Two observers were trained until they had reached 100 percent agreement on at least ten consecutive trials. Interobserver agreement (IOA) was determined by dividing the lower score (i.e., 25%, 50%, 75%, 100%) by the higher and multiplying the quotient by 100. The following formula was used:

$$\text{Percent IOA} = \text{lower/higher} \times 100$$

The second observer was present for one-third of all sessions equally distributed across phases. Mean IOA was determined by summing the scores from each IOA session and dividing the total by the number of IOA sessions. Range represents the highest and lowest scores obtained on any given IOA session.

Mean IOA was 94 percent and ranged from 87 to 100 percent.

Results and conclusions

As can be seen in Figure 1, the tactual method (i.e., no-device condition) proved to be the most effective in providing consistent coverage of the strip pad. Some variability was seen during the initial baseline phase with both subjects.

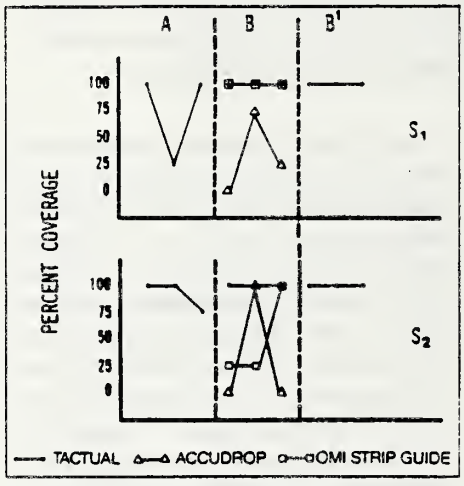


Figure 1. Percent coverage obtained on test pad when using three methods for directing droplet to pad.

However, percent coverage improved to 100 percent for both and stabilized as soon as feedback was provided in the second phase of this experiment. The use of the OMI Strip Guide also resulted in 100 percent coverage with the first subject but not with the second. Neither subject ever obtained such consistency with the Accudrop. As a result, it was determined that the tactual method—the original baseline condition—was the best method for applying droplets of blood to the test pad and would be used as the method of choice for experiment two.

Each device had particular characteristics which appeared to hamper its usefulness here. Structurally, both were made such that it was difficult for a droplet to flow to and drop on the pad. The pointer of the Accudrop's bridge, designed to guide the droplet onto the pad, appeared to require the blood to travel too far, causing blood to coagulate often before it reached the tip of the pointer.

The screws on the OMI Strip Guide caused two problems: 1) the blood would run down the screw under the pad if the screw was touched before the droplet was dropped onto the pad, and 2) the threads of the screw collected dried blood and were not easily cleaned, giving rise to concerns about sterility.

Experiment 2

Although talking glucometers make self-monitoring feasible, they do not *necessarily* make it possible. There are a number of problems encountered in self-monitoring:

- the failure to place an adequate supply of blood on the test pad;
- inappropriate or inaccurate timing of the procedure;
- expending too much time to perform the procedure;
- blotting the blood too vigorously; and
- using test strips that have deteriorated from age or light exposure (Moss & Delawter, 1986).

These problems, and others, may be exacerbated by the lack of vision. The purpose of this experiment was to determine if accurate measures of blood glucose levels could be obtained by functionally blind persons when using a talking glucometer. The subjects' performance of the procedure was evaluated under two conditions: 1) when using the manufacturers' instructions only, and 2) after training in the procedure by experienced rehabilitation teachers.

Methods

Subjects

Five functionally blind diabetics volunteered as participants in this study. Three were males and two females. They ranged in age from 24 to 35 years, with an average age of 29.8 years. Three of the subjects were totally blind. Two had light perception only in the better eye. All five regularly performed self-monitoring of blood glucose level using a digital glucometer. However, this was always accomplished with the aid of a sighted person. Two of the subjects reported that this task was not performed as often as recommended or desired because of their dependence upon sighted assistance.

Materials

The BetaScan Audio Model talking glucose meter (OMI catalog #503-00234) was used to obtain audible glucose readings in this experiment. This particular device was

selected for use here because it is specifically designed to be used by visually impaired diabetics. This device provides voice output upon command and has an easily located slot in which the test strip is inserted. Other materials included the accompanying test strips (BetaScan TrendStrips), an automatic lancing device, sterile lancets, sterile cotton, isopropyl alcohol, soap/water, and tissues for drying the hands.

Procedures

Subjects were seen individually. Each subject was familiarized with the BetaScan Audio Model (BetaScan). During familiarization, correct names were given to the various parts and the manufacturers' instructions were read aloud. Time was provided to allow the subject to perform each step. Baseline began after the subjects demonstrated familiarity with each part of the device and its operation. Subjects were provided with the materials necessary to perform self-monitoring, and with any other materials they desired.

Baseline was carried out for progressively more sessions with each subject to conform to the demands of the multiple-baseline design which was used to demonstrate control in this experiment. This design was selected because learning was expected to affect outcome (Barlow & Hersen, 1984). Data was collected on both percent coverage, as done in experiment one, and percent accuracy. Percent accuracy reflected the percent of agreement achieved between the glucose reading obtained by the subject and that obtained by the researcher, a person experienced in obtaining blood glucose levels using a digital glucometer. The subject prepared the sample, inserted it into the glucometer and pressed the button for the auditory output. Another blood sample was obtained by the researcher, who received a digital, but non-auditory, readout, and then assessed the percent of coverage using the same scale and method described in experiment one of this paper. The glucose level scores were compared and a percent of agreement determined. This score was obtained by dividing the lower score by the higher and multiplying the quotient by 100. The researcher's score was considered accurate. Therefore, the percent of agreement between the subject and researcher was considered to reflect a percent of accuracy obtained through self-monitoring by the subject.

Upon completion of baseline, the subjects received individualized instruction in the procedures outlined by the manufacturer, and more precise instructions for placing the droplet of blood on the test strip. Feedback concerning the accuracy with which they were carrying out those instructions, and the amount of coverage obtained with each droplet, was also provided. The organization and placement of materials needed for testing was also focused upon during the training sessions. During these sessions, the subjects were:

- required to wash their hands in warm, soapy water before lancing a finger;
- cautioned not to raise the arm above the heart;
- instructed to "milk" or stroke the finger in a downward motion before and after piercing the finger; and
- given feedback regarding the number and intensity of strokes needed to obtain an adequate supply of blood for consistent sampling.

Each session consisted of a single trial where blood was drawn, placed on the test strip and a reading was obtained from the BetaScan.

Reliability

Interobserver agreement (IOA) was determined for both percent coverage and percent accuracy across one third of all sessions. In both cases, a secondary observer recorded data immediately following that recorded by the primary observer. The scores obtained by the secondary observer were compared to those obtained by the primary observer. The lower score was divided by the higher in each case. The quotient was multiplied by 100 to provide a percent of agreement. Mean and range of IOA were reported separately for the dependent measures.

A secondary observer was present for 15 (i.e., 35%) of the sessions. One hundred percent agreement was found between observers on percent coverage. A mean IOA of 94.5 percent, with a range of 85 percent to 99 percent, was found on the other dependent variable.

Results

As can be seen in Figure 2, percent coverage was dramatically and immediately improved when personalized training and feedback were introduced. Only one subject (S1) failed to improve in percent coverage and, in this case, no improvement was possible. On the average, subjects improved their percent of coverage from 60 percent to 94 percent. A minimum of overlap occurred between phases.

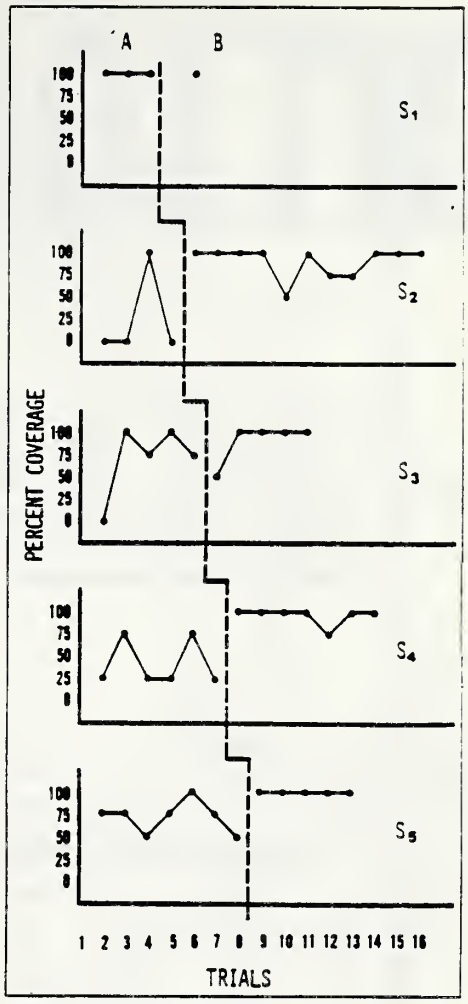


Figure 2. Percent coverage obtained on test pad (a) when using manufacturers' instructions only, and (b) when using manufacturers' instructions plus individualized instruction.

Corresponding improvements in percent accuracy were also apparent across phases (Figure 3). These changes were not as dramatic or stable, however, and there was more overlap observed between phases. Mean percent accuracy improved from 43 percent during baseline to 81 percent after intervention.

Conclusions and discussion

The questions considered in this study related to the usability of available technology for functionally blind diabetics wishing to independently monitor their glucose levels. Many blind diabetics currently self-monitor with the aid of a sighted individual. However, it is necessary to perform this function frequently. As a result, independent self-monitoring is a highly desirable goal for some. This study was conducted to determine if it were feasible for functionally blind persons to monitor their glucose levels

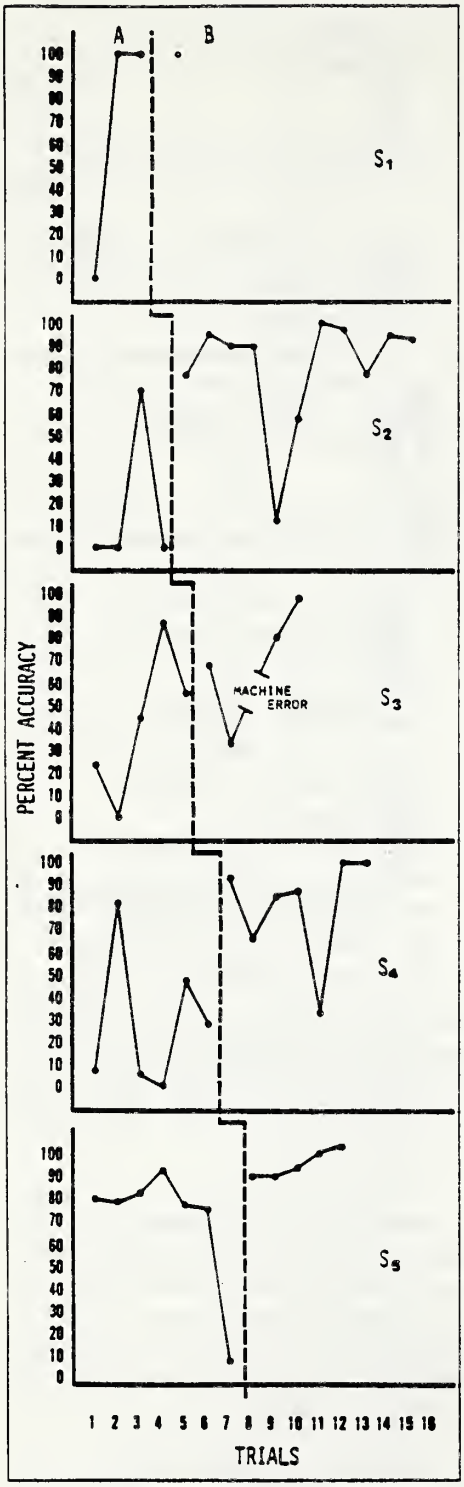


Figure 3. Percent accuracy of blood glucose level reading obtained (a) when using manufacturers' instructions only, and (b) when using manufacturers' instructions plus individualized instruction.

without sighted assistance, and if that could be done using just the instructions provided by the manufacturer without any special or individualized training.

The results of this study appear to be positive in regards to the use of talking glucometers. However, the results also make it apparent that the availability of these instruments may not be enough in itself; some form of individualized instruction is needed.

Instruction resulted in dramatic increases in coverage. At the same time, the accuracy of glucose readings nearly doubled. There is obviously a relationship between coverage and accuracy. The emphasis placed on the organization and placement of equipment and the consistency of the approach used in training also seemed to contribute to the increase in accuracy achieved.

There is no claim made that the instructional technique used here was the best, nor was there any attempt to validate it. Rather, we were simply comparing individualized instruction to no instruction. As a result, we may assume that the level of accuracy achieved in this study could be improved with more instruction, better instruction, and/or through improvements in the instructional techniques used.

Follow-up studies to determine whether subjects maintain or improve their levels of coverage and/or accuracy achieved with training have not been done. Therefore, functionally blind diabetics performing independent glucose monitoring with these devices should be encouraged to evaluate their coverage and accuracy periodically. Further research is needed to evaluate new adaptive equipment developed for self-monitoring and training techniques used to achieve success with these devices.

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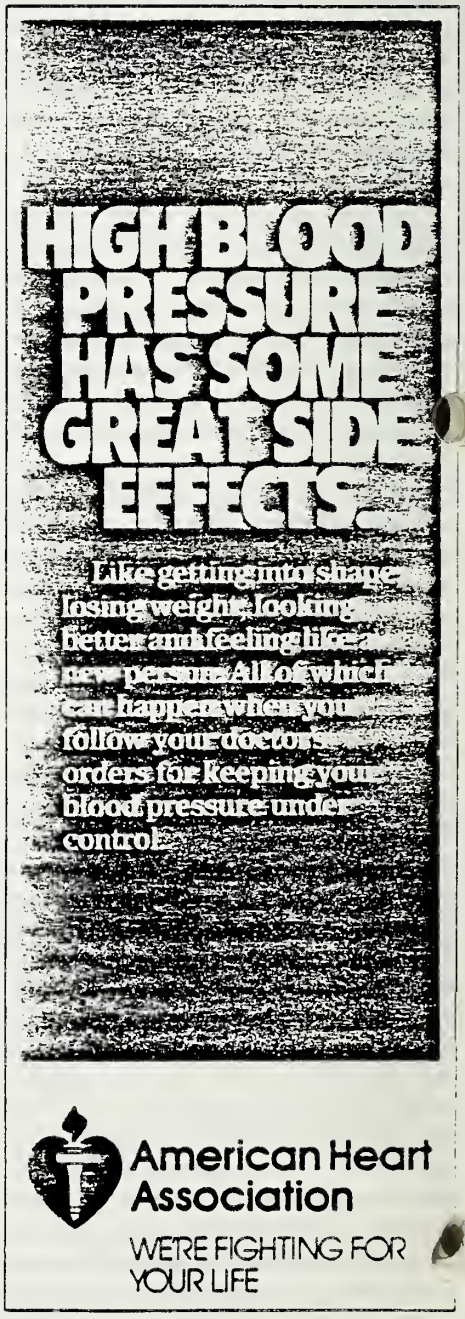
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Susan V. Ponchillia, Ed.D., assistant professor, Department of Blind Rehabilitation and Mobility, Western Michigan University, Kalamazoo, MI 49008-3899; Steven LaGrow, Ed.D., senior lecturer, Department of Psychology, Massey University, Palmerston North, New Zealand.



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ENCOURAGEMENT BREEDS INDEPENDENCE IN THE

BLIND DIABETIC

BY JOYCE M. SCHULZ, RN, AND MARIE WILLIAMS, BA, MSW

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Doing It Better

WHY TRY TO make a blind diabetic independent? Isn't it easier just to make sure that his family, friends, or clinic will premeasure his insulin and test his urine? In fact, isn't it safer?

Yes, management by others is easier and maybe a little safer. And some blind diabetics may prefer it. But most blind diabetics, even those with supportive spouses, crave independence. And nearly all but the most severely diabetic could achieve it *if encouraged to*. Unfortunately, though, few health professionals give that encouragement. Too many of them feel that treatment should aim at absolute control with no risks. As well-meaning as that goal is, it overlooks the chief concern of many blind diabetics: a fulfilling life with minimal dependence on sighted persons. The health professionals' fears also reinforce those of the patient.

In our experience at the Minneapolis Society for the Blind, working primarily with diabetics, we've come to feel that you can't work adequately with a blind diabetic unless you understand the emotional impact of his blindness, its effect on diabetic control, and the practical skills that he can learn to control his condition. Sometimes it's necessary to de-emphasize diabetic control in favor of the patient's emotional needs.

A double blow

Blindness comes as a tremendous shock to anyone, even an otherwise healthy person or someone whose vision has been fading for years. Suddenly the blind person realizes that he can't do all those things that we take for granted in everyday life — reading, writing, applying cosmetics, shaving, working, even just walking around freely. Since all of these activities are tied to our sense of self-worth, the most common reaction of any newly blind person is to feel that he's lost his worth as a person. He's still the person he was before, with all the same needs and goals. But to live a "normal" life, he has to start from scratch and relearn even the simplest activity.

Still, if blindness is a person's only handicap, he can usually master new techniques — traveling with a cane or dog, for instance; reading Braille; typing instead of writing; using special devices to cook, keep house, work.

For the diabetic, though, blindness comes as a double blow. Because of related health difficulties — loss of tactile sensitivity, for instance, or circulatory impairment — he may have more difficulty using Braille, moving around well, or keeping up with a job. Worst of all, blindness interferes with two activities essential to his very existence: Giving himself insulin injections and testing his urine. Still, the motivation of most blind diabetics is truly extraordinary; they want these skills so much that their desire often outweighs any difficulties.

Unfounded concerns about injections

Our experience indicates that, contrary to the assumption of some health professionals and patients, self-management of diabetes by blind patients needn't be dangerous or impossible. Of the more than 100 blind diabetics we've worked with, only a very few of those who wanted to become independent failed to learn how to measure and inject their insulin.

Many professionals and patients voice two concerns about self-injections: First, that the patient might inject a dangerous amount of air into subcutaneous tissue and, second, that he'll make a dangerous injection into a blood vessel. Let us lay both concerns to rest.

If a patient is taught proper techniques, he can't inject more than a harmlessly tiny amount of air into subcutaneous tissue. The only real danger to guard against is getting an air bubble so large that it displaces a significant quantity of insulin. By slowly withdrawing and reinjecting insulin into the vial three times before the actual injection and by holding the vial perpendicular to keep the insulin level, though, he can eliminate any large bubbles.

If the patient uses prescribed injection sites and techniques, he also runs little risk of injecting into a blood vessel — even though he won't be able to pull back the plunger to check for blood.

To make insulin injections as risk-free as possible, we also teach the following precautions:

- When giving himself an injection, the patient should stabilize his hand by placing his little finger against the skin and

using it to locate the injection site. He then should inject the needle from the skin rather than with the more common dart-like motion. (Of course, there's no need to pull back on the plunger.)

• The patient must keep an accurate record of how many doses he's used so he'll know when his bottle is empty. One method of keeping an accurate record involves putting as many marbles as doses in a container and removing one marble after each injection. To keep the insulin level from getting too low, he should throw the bottle away when two doses remain.

Blind diabetics can use a variety of devices to measure their insulin accurately. We've found the Hill Accurate Dosage Syringe, the Copper Sleeve, and the Insulgage TM Loading Gauge useful and easy to manage. But you have to select each device to fit the particular patient's needs (see insert).

Urine testing: Not perfect, not essential

More than self-injections, self-testing of urine poses a problem to blind diabetics. Several groups are trying to devise a simple, reliable method that doesn't depend on vision. But so far all reliable tests do depend on vision, which definitely poses a handicap to blind diabetics living alone.

We demonstrate the "yeast method" of urine testing to all of our blind diabetic patients. This method calls for placing ¼ teaspoon of yeast in a Uritec-tube and adding approximately 12 cc of urine. The patient then fits a fingercot over the top of the tube, making sure it is completely deflated. If glucose is present, it will interact with the yeast to form a gas that will inflate the fingercot within 10 to 20 minutes. By feeling the fingercot, the patient can assess the amount of glucose spillage: a deflated fingercot indicates no glucose or only a trace, a mushy feeling indicates a medium amount of glucose and a taut feeling indicates a large amount of glucose.

Several of our blind patients use this method for reassurance on special occasions, such as when their spouse goes out of town for several days. But some diabetics refuse to use it because it's cumbersome, time-consuming, messy and not totally reliable. We never condemn a patient who chooses not to use it. Naturally we always encourage urine testing. But we also accept the fact that not all patients will stick with it. And until someone invents a reliable, acceptable test that doesn't depend on vision we feel we have no right to deny the blind diabetic the freedom to live independently without urine testing — provided he knows the risks.

Remember, most of the blind diabetics you work with will be familiar with the techniques of handling a syringe and giving themselves injections. If they want to become independent, most need nothing more than your reassurance to learn the simple modifications necessary to achieve it.

Your attitudes are critical, perhaps even paramount, in shaping the diabetic's state of mind and self-esteem when he first begins to lose vision. Long before a rehabilitation professional sees the person, you can facilitate his adaptation to life. The important thing is to focus not on what he has lost, but rather on the abilities he still has intact.

What causes diabetic blindness?

Diabetes can attack vision in several ways — through refractive error, cataracts, glaucoma, optic neuritis, paresis of the optic nerves, and retinopathy. Of these, retinopathy is the most common serious complication.

Retinopathy first appears as micro-aneurysms and dilated, sausage-like veins in the retina. As it progresses, it produces small hemorrhages, lipoprotein exudates, and neovascularization in the posterior retina, particularly around the macula and disc.

In advanced stages, retinopathy causes connective tissue proliferation and neovascularization on the retina (retinitis proliferans). The vessels, which may extend into the vitreous of the eye, bleed easily, resulting in vitreous hemorrhage and occasionally in sudden blindness. Sometimes growth of the vascular and connective tissue completely blocks the out-flow angle, too, producing intractable secondary glaucoma.

Although visual impairment from retinopathy is always bilateral, its severity may differ in the two eyes.

The day-to-day extent of impairment varies, too. One day vision may be good; the next, totally absent; and the next, back to normal. Or the person may wake up almost totally blind, yet regain his vision by the end of the day.

In legal parlance, and for the purposes of this article, blindness is considered to be central visual acuity of 20/200 or less in the better eye with corrective lens, or visual acuity of more than 20/200 if the peripheral field of vision is restricted to 20° or less.

Some helpful devices

Here are just some of the devices now available to help blind diabetics give themselves insulin injections.

• *Hill Accurate Dosage Syringe.* Available through the American Foundation for the Blind and through some hospital supply companies, this reusable metal and glass syringe is readily obtainable for U-40 and U-80 insulin but more difficult to obtain for U-100. A sighted person has to preset the syringe, and the patient has to keep it sterile as he would any other reusable glass syringe. Only a doctor or nurse can order this device.

• *The Copper Sleeve.* This prototype for many loading devices is available through the Minneapolis Society for the Blind. The copper sleeve is a piece of copper tubing cut to the required dose with an individual glass or BD disposable syringe and fitted around the plunger. Usually patients find it simpler to use than the Hill Accurate Dosage Syringe, but some may find it too small to handle easily. The copper sleeve can't be used with different brands of syringes, to measure a mixed dose, or to vary a dose.

• *The Insulgage TM Loading Gauge.* This new device, manufactured by Meditec (Englewood, Colorado), is rapidly becoming the method of choice. It comes as a precalibrated volume regulator made of durable plastic and available in a three dosage sizes — U-40, U-80, and U-100. Since insulin syringes may differ in size and shape, a gauge must be used exclusively with a particular brand and type. Currently gauges are available only for the disposable B-D Plastipak self-contained syringes and for Jelco long syringes. They come in sets of 2, 3, 5, 8, and 12, enabling the patient to vary his dosage or measure a mixed dose. They also come in standard ink print, raised numbers, or Braille.

In addition to these measuring devices, a blind diabetic may find the following useful.

• *Needle Guide.* Available from the American Foundation for the Blind, this small funnel-shaped metal device fits over the top of Eli Lilly insulin vials to help guide the needle into the rubber cap.

• *Bottle Guide.* Available from the Minneapolis Society for the Blind, this wooden device has an extended arm against which the patient rests his bottle and a groove into which he places the syringe. He then slides the syringe along the groove and into the bottletop. Usually patients use this device along with the metal needle guide.

Tool Chest

Glucose Monitoring: A New Technique in Preparing the Glucose Strip

LOIS N. SPENCER, RN, MSN, Educ Spec
Clinical Nurse Specialist
Veterans Administration Medical Center
Kansas City, Missouri

Blood glucose monitoring (BGM) has become a major component of diabetes management but it is costly in money and time, and many patients find the task frustrating. The accuracy of the blood glucose value is dependent upon an adequate amount of blood being properly placed on the chemically treated pad. Improperly prepared glucose strips increase both the cost and frustration when the procedure must be redone. Much has been written regarding the noncompliance that results from this state of affairs, but little has been done to find modifications that facilitate glucose monitoring. Proper preparation of the glucose strip is a significant problem for many persons, especially those with failing eyesight, arthritis, poor coordination, and peripheral neuropathy. The purpose of this paper is to illustrate a technique for patients whose vision and coordination are less than optimal to apply blood to the chemically treated pad.

Review of Literature

The literature substantiates the importance of BGM in metabolic control; however, very little has been written to help an individual properly prepare the glucose strip. Illustrations provided by Boehringer Mannheim Diagnostics[1] depict how a drop of blood is "lightly touched" against the pad surface. In addition, the patient is cautioned to cover the entire pad and not to smear the blood. Kilo and Dudley[2] indicate that blood is applied to the pad, but they do not explain how this is done. Skyler[3] states "the technique of SBGM involves... placing the drop of blood on the pad at the end of a plastic strip...." Again the procedure is not explained. Lorber[4] in 1986 commented that the "obtaining of blood and applying it to the strip have changed little" in the last few years. Typically, health care providers underestimate the psychomotor and cognitive skills required to do accurate SBGM. As noted previously, physical limitations make it difficult to put blood on the strip without smearing. Moreover, the current concern of health care providers about handling blood and blood products requires that we look at alternative methods of applying blood to the pad.

Procedure

The simple technique described here allows one to completely cover the chemical pad with blood while using less blood. Less blood is needed because all of the blood is put on the pad, leaving no residual on the finger.

After cleaning the hands by washing with soap or alcohol, prick the finger with a spring-loaded device. Keep the finger flat so the blood pools. Obtain a drop of blood large enough to cover the chemically treated pad. Pick up the glucose strip between the thumb and index finger, holding the strip close to the pad. If the strip is held at the end, it is unstable and can flip the blood from the pad. Slide the side of the glucose pad under the blood in a smooth one-stroke application (Figs 1 and 2). In this maneuver, the strip is used much as you would use a spatula in the kitchen. In fact, patients using this method have named it the "spatula" technique. Note



Fig 1. *After a pool of blood large enough to cover the pad has collected, slide the glucose pad under the blood.*



Fig 2. *Using the strip as a spatula, slide the blood onto the pad in a smooth one-stroke application.*



Fig 3. *With this technique, all the blood is gathered on the pad; none is left on the finger.*

Correspondence to Lois N. Spencer, RN, Veterans Administration Medical Center, 4801 Linwood Blvd, Kansas City, MO 64128.

that there is no residual blood on the finger (Fig 3). Complete the test by keeping the strip flat, wiping at 60 seconds, then timing and reading as before. Have the patient use a piece of cotton to apply gentle pressure over the puncture site to stop the bleeding. This will reduce the frequent complaint about the finger being sore after puncture.

Some diabetes educators may question the accuracy of the blood glucose values obtained by using this technique. To test its accuracy, we obtained blood from patients and nursing staff using the traditional drop method and the modified technique described above. An Accu-Chek II monitor (Boehringer Mannheim, Indianapolis) was used to determine the blood glucose values for both samples. There was no more than two minutes variance in time between the two readings. The average variation between the two groups was 5 mg/dL [0.275 mmol/L].

In summary, the modified technique provides an alternative method of applying blood to the pad. Patients report that it is easier to prepare the blood strip using this technique. Nurses also express satisfaction with the technique, as they frequently have problems getting adequate blood from ill patients. Less blood is needed because all of it is applied to the glucose strip. By teaching this method to patients with impaired vision or limited fine motor skills, you provide them with the skill to successfully monitor their blood glucose levels. This success should help motivate them to monitor their blood glucose levels independently to help achieve good control.

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Metformin Therapy in Renal Insufficiency*

A.E. STOCKS, J. SCHNEIDER, A. MA, P.J. RAVENSCROFT, D.P. CAMERON
Departments of Diabetes and Clinical Pharmacology
Princess Alexandra Hospital
Brisbane, Queensland, Australia

Despite the assertion that metformin is unsafe in renal insufficiency, metformin-associated lactic acidosis occurs rarely. We have studied the pharmacokinetics of metformin in 13 Type II (noninsulin dependent) diabetics with normal renal function (N) and 13 Type II (noninsulin dependent) diabetics taking metformin who were found incidentally to have renal insufficiency (CRI) with serum creatinine 0.14–0.73 mmol/L. All were taking metformin, 500 or 1000 mg three times a day, some together with sulfonylureas.

Serum metformin, pyruvate, lactate, and creatinine clearance were measured at 0800, 1200, and 1600 hours, before each dose of metformin. Serum metformin levels were higher in CRI than N, and correlated inversely with creatinine ($P < .001$). However, serum lactate was no higher in CRI (1.54 ± 0.49 mmol/L) than N (1.64 ± 0.66 mmol/L) at 0800 hours, was insignificantly higher at 1200 and 1600 hours ($P > .1$), and did not exceed 4.5 mmol/L in any patient with CRI. Serum lactate did not correlate with creatinine clearance or serum metformin at 0800 hours. Serum lactate correlated with serum metformin at 1200 and 1600 hours ($P < .01$). Serum pyruvate was no higher in CRI than in N, and it did not correlate with serum metformin.

Conclusion: The data in this study do not indicate a risk of metformin-associated lactic acidosis in mild or moderate renal insufficiency.

*Abstract of a paper presented at the Annual Scientific Meeting of the Australian Diabetes Society and the Australian Diabetes Educators Association, August 26–28, 1987, University of Sydney.

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Practical Diabetology

USEFUL INFORMATION FOR THE BUSY PHYSICIAN

Devices for Visually Impaired People with Diabetes

Alex Townsend

People with diabetes today represent an increasingly significant proportion of the visually impaired population in the United States. Heightened sensitivity to the complexities imposed by diabetes upon blind patients is evident among physicians, nurses and health professionals. At the same time, family members, employers, educators, and rehabilitation specialists seek guidelines and resources specific to problems associated with diabetes and visual loss.

One must consider, in addition to its tremendous economic and psychosocial impact on patients and their families, that diabetes endures for a lifetime. Its management pervades the individual's daily life: diet, exercise, blood or urine testing, injections of insulin or oral medications, foot care, and so forth. Although significant, often crucial benefits may accrue from self-administered diabetes control methods, most people are unaware of the existence of several reliable devices that enable many blind people with diabetes to safely measure and administer insulin.

These devices, in conjunction with careful instruction and encouragement, allow many blind people with diabetes to enjoy independence in adhering to prescribed regimens. Often the ability of a visually impaired diabetic individual to properly measure and self-inject insulin is one of sheer necessity rather than a matter of convenience.

The selection and suitability of a particular device must be based on the special needs, idiosyncracies, and circumstances of each individual as mutually perceived by both patient and health care team. This article contains descriptions of devices that blind people find suitable and manageable for their self-administration of insulin.

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Mr. Townsend is Consumer Resource Consultant for the American Foundation for the Blind in New York City.

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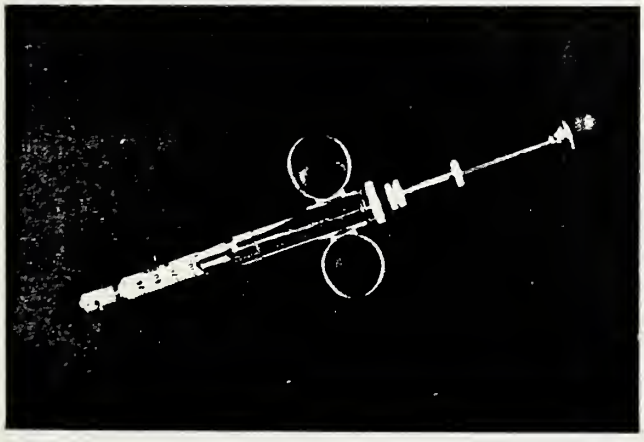
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A special test strip guide is available to assist visually impaired users. The reagent strip is inserted between two prongs on the guide, and the finger is pricked and placed in an easily identified position on the strip guide to that the blood drops onto the reagent strip. After wiping blood off the pad, the user inserts the reagent strip into the BetaScan and waits for the test results to be verbally announced. Its built-in rechargeable batteries provide approximately 100 tests between charges, and there is a 12-month guarantee on parts and labor. *Caution:* Because many visually impaired individuals find it difficult to properly apply blood samples to reagent strips, training and supervision in the use of electronic self blood glucose test meters by a physician or nurse is strongly advised. *Orange Medical Instruments, Suite F, 3183 Airway Avenue, Costa Mesa, CA 92626. Price: $400.00 (catalog no. 503-00234).*

Speech-adapted blood glucose meters. On request, *Science Products (Box A, Southeaster, PA 19399)* will adapt commercially available Bio-Dynamics Accu-Chek and Ames Glucometer blood glucose meters with spoken readouts of their digital displays in ways that do not otherwise modify their operation as intended by the manufacturers.

Caution: The use of standard blood glucose meters by diabetic blind persons is not recommended unless it is under the direct supervision of a physician, nurse, or qualified health professsional, owing to difficulties encountered when attempted to properly transfer a blood sample from the finger to test strip.

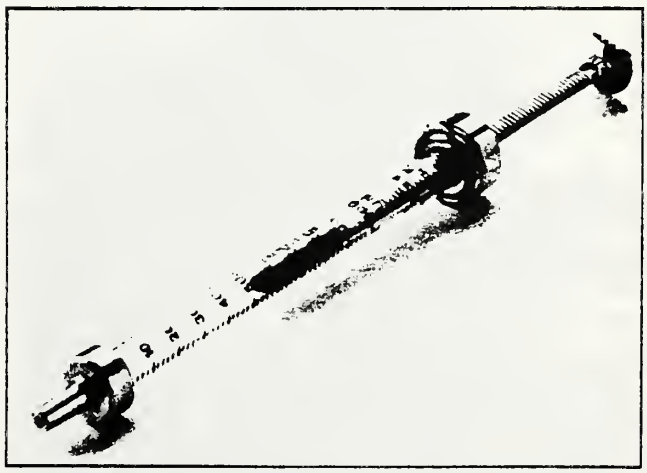
Adapted Insulin Syringes



B-D Cornwall syringe with metal pipetting holder. This special model syringe, made by Becton-Dickinson and Company, is comprised of a 1-cc replaceable B-D Comwall glass syringe that fits inside a metal holder equipped with an adjustable plunger to stop. It is highly accurate but bulky, and must be preset by a physician or nurse to ensure that the syringe plunger draws the correct volume of insulin from the vial. It is not for mixed dosages of insulin. Disassembly (required for cleansing insulin solution from syringe barrel) is accomplished without disturbing the setting. Instruction in use, disassembly, and reassembly of components is required. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price: $17.50 (catalog no. MES664).*

Insulin Syringe MES260. This precision device consisting of a 2-cc glass syringe barrel is fitted inside a 3½" metal casing on which a large nut is threaded. As the nut is rotated, "clicks" can be heard and felt. Each "click" represents an increase of 1/20 ml of liquid, i.e., 5 units of U-100 insulin. (U-100 can be measured only in 5-unit increments.) The accuracy of the dosage depends on the number of "clicks" heard or felt, and a high degree of hearing, tactual sensitivity, and/or concentration is necessary. The user can change dosages at will without sighted assistance. Directions are included.

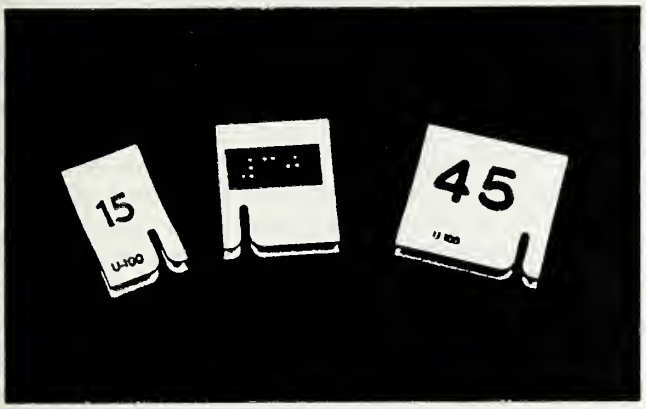
Although well-engineered and simple in concept, the weight, bulk, and manipulative requirements of this syringe are considered to be excessive by some. Others say its several components pose difficulties in assembly and disassembly for sterilization. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price: $26.00 (catalog no. MES 260).*



Click-count U-100 Insulin Syringe. This reusable glass syringe of British manufacture is for use by blind or partially sighted patients who possess sufficient dexterity and sense of touch to ensure its effective operation. The method of holding and manipulating this syringe when filling is critical to proper use. The stainless-steel shaft of the syringe plunger is notched in 2-unit increments so that, as the plunger is withdrawn, resistance is felt and an audible click is produced for each 2-unit increase in the amount of U-100 insulin drawn into the glass barrel. Training and practice in the use of this device is strongly advised

CONTINUED ON PAGE 24

Pre-calibrated Syringe Loading Gauges



Insulgage loading gauge. This simple yet precise loading gauge is for drawing up a prescribed dosage of insulin in a disposable syringe without searching for the correct mark on the measurement scale of the syringe barrel. It can be used only with 1-cc B-D Plastipak 8410 or 8412 U-100, or Monoject 1-cc U-100 insulin syringes. Each gauge, made of durable plastic, is designed for loading a particular dosage and is produced in sizes ranging from 4 units to 85 units. Dosage sizes are marked on the face of the gauge in one of four ways: inkprint, braille, raised numbers, or both raised numbers and braille. The user must order gauge sizes with the help of a physician or nurse. The prices are determined by the way the gauge is marked and range from $5.00 to $8.00. Directions for use, warranty, and receipt are included. *Meditec, Inc., 9485 East Orchard Drive, Englewood, CO 80111. (They are not sold through local drug stores.)*

Dos-aid syringe filling device. This adjustable volume regulator is for positioning the syringe plunger to predetermine the length of the column of insulin that can be drawn into the syringe, thereby governing the number of units of insulin injected. It is made of durable plastic and is designed primarily for 1-cc disposable U-100 syringes such as the B-D Plastipak. The device holds the syringe as well as the insulin bottle. It is not suited for use with square-shaped Eli Lilly insulin bottles or with any Squibb insulin bottles. It also cannot be used with B-D Lo-Dose 0.5-cc disposable syringes or for mixed dosages.

In use, the disposable syringe is placed in the cradle in the center of the device and the plunger is drawn back as far as the plunger stop permits. The insulin vial is positioned at the opposite end of the device and is pushed toward the syringe. As the vial approaches the syringe, the needle penetrates the rubber stopper so that the syringe can be filled in the usual manner. After filling, both syringe and insulin vial are removed and the injection proceeds as prescribed by the physician, who initially sets the device for the proper dosage and locks the setting firmly in place. Once it is set for a particular brand and type of syringe, the device should be used thereafter *only* with an identical type of syringe. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price: $18.50 (catalog no. MES563).*

Andros IDM (insulin dosage monitor). This calibrated plastic strip is for use only with Becton-Dickinson #8409 Plastipak U-100 disposable syringes. The physician or nurse snips off the strip at the point on the scale corresponding to the prescribed insulin dosage. To self-inject, the user fits the lip of the syringe barrel into the slot, and then draws the plunger back until it snaps past the snipped-off edge of the insulin dosage monitor. It cannot be used to measure mixed dosages. The unit scale is calibrated in 2-unit gradations. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price $1.50 (catalog no. MES384). Independent Living Aids, Inc., 11 Commercial Court, Plainview NY 11803. Price: $3.50 (catalog no. 074300).*

Blood Glucose Analysis Devices



Betascan audio model self blood glucose meter. This is a portable microprocessor instrument for qualitative measurement of glucose in whole blood when used with special blood glucose test strips. The user places a drop of blood on a reagent strip and, after two minutes, inserts it into the BetaScan instrument for analysis. An electronic voice announces the blood glucose level and the number of seconds left before test results are obtained, and alerts the user to a low battery condition or operational error.

CONTINUED FROM PAGE 3

under supervision of physician or nurse/educator. *Orange Medical Instruments, 3183 Airway Avenue, Suite F, Costa Mesa, CA 92626. Price: $30.00.*

Insulin Syringe Magnifier

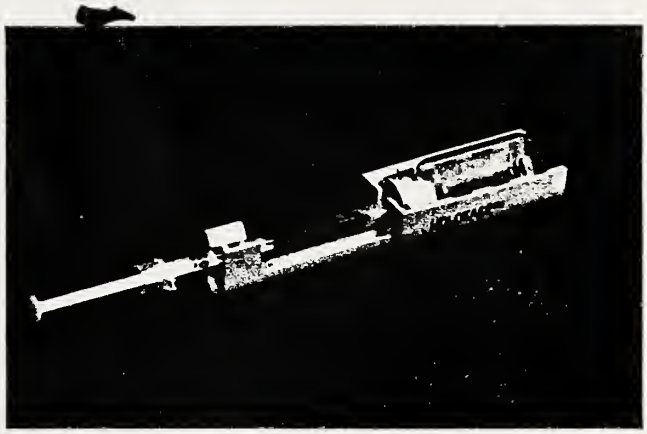
B-D Magni Guide. This precision optical system is designed to accept the barrel of 1-cc and ½-cc insulin syringes and accurately guide the needle into the center of the insulin vial stopper when the user is preparing to draw up insulin. One end of the guide has a recess to firmly hold a 10-cc insulin vial. It magnifies the entire length of the syringe scale for easier reading. It is convenient to hold and to use. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price: $3.50 (catalog no. LMC 7109). Independent Living Aids, Inc., 11 Commercial Court, Plainview, NY 11803. Price: $3.50 (catalog no. 454500).*

Syringe Needle Guides

AFB Insulin needle guide. This circular aluminum cap is designed to fit on top of Eli Lilly insulin bottles. The inner contour is funnel-shaped and guides the syringe needle directly into the rubber stopper. It helps to prevent bending and contamination of the needle. It is for use only with Eli Lilly insulin bottles. *American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. Price: $3.25 (catalog no. MES168).*

Erratum

In the March/April 1985 issue of *Practical Diabetology* in "The Association Between Thyroid Disease and Diabetes Mellitus," Graves' disease was incorrectly referred to as "Grave's disease." The editors apologize to the authors and to the memory of Dr. Graves for this error, and thank Dr. Eric Orzeck for bringing this Grave error to our attention.



Holdease needle guide and syringe/vial holder. This plastic needle guide holds both syringe and insulin vial together to facilitate their handling while the syringe is being filled and guides the syringe directly into the rubber stopper. It works with all U-100 disposable syringes, both 1-cc and ½-cc. It is not for use with glass syringes or short-type disposables, but can be used with long narrow insulin vials common in Europe. It will handle a mixed dosage and also works in combination with Insulgage loading gauges. It is sold by mail directly from the manufacturer. *Meditec, Inc., 9485 East Orchard Drive, Englewood, CO 80111. Price: $9.75.*

Conclusion

There is a wide range of products available for the visually impaired individual with diabetes. The differences between them reflect the differences between patients in terms of visual acuity, hearing, tactile sensation, dexterity, motivation, and learning ability. For this reason a product must be chosen carefully, and with professional consultation, tailored to the individual patient's needs and capabilities. PD

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MAGNIFIERS

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    Vial Sleeve
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Insulin Syringe
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Insulgages
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Morris Watts Insulin Gauge
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Unicalaid

DRAWING UP INSULIN

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Holdease
(Inject-Aid)
Injection Safety-Guard
(Insul-eze)
Insulin-Aid
Insulin Needle Guide
(Magni-Guide)
Nordisk Insulin Bottle Tops
Nordisk Mixtard (Pork & Human)
Squibb-Novo Novolin 70/30
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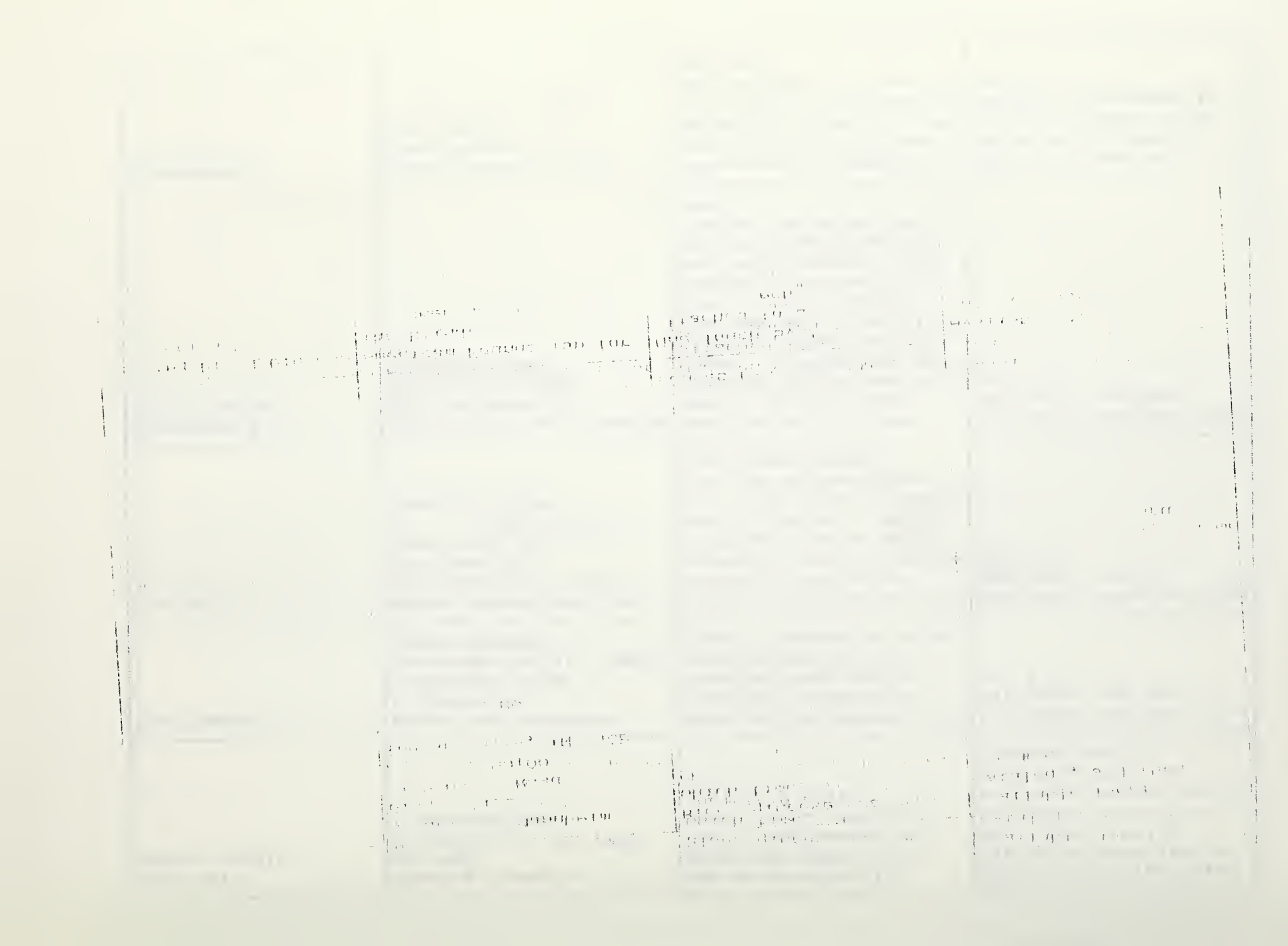
If you are aware of any more aids/products, please notify me as soon as possible.

Diabetes Aids/Products For People With Visual or Physical Impairment: Monitoring

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Ames large block color comparison charts	Ames Division, Miles Laboratories, Inc. P.O. Box 70 Elkhart, IN 46515	Large block color comparison charts available for: Acetest Clinitest Clinitest 2-drop Dextrostix Diastix Glucostix Keto-Diastix Tes-Tape.	Free from company
Accu-Chek II	Boehringer Mannheim Diagnostics 9115 Hague Road P.O. Box 50100 Indianapolis, IN 46250-0100 1-800-858-8072	Pictural teaching booklets and cassette tape instructions available.	Operator's Manual "You and Accu-Chek II" and tape with monitor "How Do I Clean My Accu-Chek II?" and "How To Use Accu-Chek II..." teaching booklets available from company
Accu-Chek II Freedom Audio Self Blood Glucose Monitoring System	Boehringer Mannheim Diagnostics 9115 Hague Road P.O. Box 50100 Indianapolis, IN 46250-0100 1-800-858-8072	System includes Accu-Chek II with an Accu-Drop (with an electronic beam sensor to tell if adequate blood has been properly placed on the strip)and a voice module (which provides a series of interactive verbal audio cues to prompt & guide through the entire procedure).	Check with company for local representative and availability

Accu-Drop	Boehringer Mannheim Diagnostics 9115 Hague Road P.O. Box 50100 Indianapolis, IN 46250-0100 1-800-858-8072	Device that an individual with neuropathies or tremors can use to obtain a precise, uniform drop of blood for accurate blood glucose testing.	Available locally, from catalogs, and thru 800 #'s
Autolet Mark II	Ulster Scientific Inc. P.O. Box 902 Highland, NY 12528 (914)795-2522 1-800-431-8233 (NY 1-800-522-2257)	Has eject lever to slide out used platform. Uses monolet or unilet, which can also be ejected easily.	Available locally, from catalogs, and through 800 #'s
BetaScan Audio Meter Kit OMI Strip Guide	Orange Medical Instruments 3183 Airway Ave. Suite F Costa Mesa, CA 92626 1-800-527-1151 (CA: 714-641-0674)	Large LED display. Electronic voice gives messages and results. Accompanying cassette tape with instructions. OMI Strip Guide assists the user in proper placement of blood on test pad.	Available locally, from catalogs, and through 800 #'s (Kit is $610 retail and includes test strips lancets, lancet devices and carrying case.)
Diascan-SVM	Home Diagnostics, Inc. 6 Industrial Way West Eatontown, NJ 07724 1-800-DIASCAN (NJ 1-201-542-7788)	Large digital display on Diascan-S and large print instructions with diagrams. No hanging drop of blood required. (Wipe with any soft paper product.) Can be attached by cable to voice module which announces information needed for procedure and blood glucose reading.	Available locally, from catalogs and through 800 #'s

Digi-Voice Speech Module	Science Products Box 888 Southeastern, PA 19399 1-800-888-7400	Can be attached to Glucoscan 3000, One Touch, Glucometer M. Gives voice readout of digital display.	$420.00 for Digi-Voice Glucoscan 3000 $169.00 One Touch $199.00 Glucometer M $735.00 - with Digi-Voice. Available from Science Products only.
Easy Reader	Boehringer Mannheim Diagnostics 9115 Hague Road Indianapolis, IN 46250 1-800-858-8072	Attaches to Chemstrip bG vial and frames and steadies test pad to vial to assist with visual reading of strip.	Available locally, from catalogs, and thru 800 #'s
ExacTech	Baxter Healthcare Corp. 1415 Lake Cook Road P.O. Box 852 Deerfield, IL 60015-0852 1-800-527-3339	Simple procedure with no timing, blotting, or washing. Result appears in 30 seconds on small display screen. Magnifier (x2) which clips on over screen available free from company.	Available locally, from catalogs, and thru 800 #'s
Glucochek S.C. Audio Monitor	EquiMed Medical Products 8347 Melrose Dr. Lenexa, KS 66214 1-816-842-1555	Braille instructions, audio tape, enlarged type and photo instructions. Information and blood glucose reading provided by LCD display and series of beeps. Company includes Accu-Drop with monitor. Can use Strip Splitter II & adapter (No Accu-Drop) however.	Available locally, from catalogs, and thru 800 #'s
Glucometer II & Glucostix	Ames Division, Miles Laboratories, Inc. P.O. Box 70 Elkhart, IN 46515	Accompanying cassette tape with instructions. Large print instructions available for Glucometer II & Glucostix visual testing.	Tape with monitor. Large print instructions available from company ("Two Ways to Test").



Match Maker	Boehringer Mannheim Diagnostics 9115 Hague Road P.O. Box 50100 Indianapolis, IN 46250 1-800-858-8072	Blood glucose reader which times visual Chemstrip bG procedure. A color template wheel is rotated to the best match in color and the selected colors' numerical value appears on display. If equal to 240 or greater, times for additional minute before result can appear.	Available locally, from catalogs, and thru 800 #'s
One Touch Blood Glucose Monitoring System	Lifescan A Johnson & Johnson Co. Mountain View, CA 94043 1-800-227-8862	Simple procedure with no timing, wiping, blotting or washing. Result appears in 45 seconds on large display screen. Strip clamps provide tactile help for placing blood on strip. Auditory sound when monitor senses blood on strip.	Available locally, from catalogs, and thru 800 #'s
Talking Blood Glucose Monitoring Kit: Port-O-Voice Speech Output (and One Touch Blood Glucose Meter)	American Foundation for the Blind Consumer Services 15 West 16th Street New York, N.Y. 10011 (201) 862-8838	One Touch System is attached to a Port-O-Voice Speech Module which annunciates all displayed messages.	Available from AFB only ($399.00)

NOTES: For accurate results with blood glucose monitoring, person must be able to correctly apply blood from finger onto the strip. The placement area for blood is able to be recognized by "feel" on each strip used by meters in this listing.

Persons with unstable or fluctuating vision should consider investing in a meter with audio and/or tactile adaptations. Third party payors usually will not pay for a second meter within one year.

Diabetes Aids/Products For People With Visual or Physical Impairment: Magnifiers

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Cemco	CEMCO P.O. Box 21 Scandia, MN 55073 (612) 464-3181	2 different magnifiers, "regular" for disposable syringes (pinch clip together for smaller syringes) and "large" for reusable insulin and tuberculin syringes ($\leq$ 3/8 " diameter). Clips onto syringe. Magnifies 1" of scale x2.	1 $4.00 12 $33.00 (suggested retail $4)
Insul-eze	Palco Labs 1595 Soquel Drive Santa Cruz, CA 95065 1-800-346-4488 (CA: 408-476-3151)	Devices (1/2cc & 1cc sizes) that hold insulin bottle (using adapter for Nordisk) and syringe and direct needle into stopper and magnify scale. Bottles can be changed without removing syringe from device. (Palco is working on a measuring device which will attach to an Insul-eze and measure varying dosages.)	Available locally, from catalogs, and through 800 #'s

Magni-Guide	BECTON DICKINSON Consumer Products Becton Dickinson & Co. Franklin Lakes, NJ 07417-1883	Snaps onto Lilly, Nordisk & Squibb-Novo insulin bottle caps. Doubles as needle guide into vial stopper. Magnifies entire scale x2. Usable with 1cc & 1/2cc insulin syringes. DO NOT IMMERSE.	Available locally, from catalogs and thru 800 #'s

NOTES: Monoject's syringe magnifier may still be available in stores, but it has been discontinued.

The lines and numbers on 1/2cc syringes may be easier to see than those on 1cc syringes, and 3/10cc syringes are now available from Becton Dickinson.

Magnifiers may not be the solution for some visually impaired persons. For them, high powered magnification devices and/or low vision aids may help.

Diabetes Aids/Products For People With Visual or Physical Impairment: Measuring Insulin

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Click-Count	Orange Medical Instruments 3183 Airway Ave. Suite F Costa Mesa, CA 92626 1-800-527-1151 (CA: 714-641-0674)	Glass 1cc u-100 syringe has notched plunger which "clicks" (felt & heard) upon measurement of every 2 units of insulin.	Available locally, from catalogs and thru 800 #'s $40.00 Retail
Count-a-dose	Jordan Enterprises 12555 Garden Grove Blvd Suite 507 Garden Grove, CA 92643 1-800-541-5123 (CA: 714-530-5123)	Device holds 1 or 2 bottles of insulin and a B-D u-100 1cc disposable syringe. Needle enters bottle and when a wheel is turned, "clicks" representing 2 units of insulin into the syringe can be heard and felt.	Presently, available from Jordan Enterprises for $49.95
Cornwall	American Foundation for the Blind Consumer Services 15 West 16th Street New York, NY 10011 (201) 862-8838	1cc syringe with metal pipetting holder calibrated in 20 5/100 cc units with positive adjustable stop which can be set by sighted person. Not for mixed or changing doses.	Available from AFB only ($18.50 for metal pipetting holder, $5.95 for glass syringe)
Dos-Aid (+Vial Sleeve)	American Foundation for the Blind Consumer Services 15 West 16th Street New York, NY 10011 (201) 862-8838	Adjustable volume regulator which can be set by sighted person. Uses disposable u-100 1cc syringes. Holds insulin bottle and syringe. Not for mixed or changing doses. (Use vial sleeve for Nordisk insulin bottles).	Available from AFB only (19.50 for Dos-Aid, $6.50 for Vial Sleeve)

E-Z Ject Insulin Syringe	Can-Am Surgical Corp. 330 Easy St.,Unit 10 Simi Valley, CA 93065 1-800-367-5200 (CA 1-800-247-7304)	Large easy to read numbers. Convex shape of plunger tip may make measurement reading difficult for some people.	Contact company for local distributor.
Insulin Syringe	American Foundation for the Blind Consumer Services 15 West 16th Street New York, NY 10011 (201)862-8838	Glass insulin syringe fitted inside 3 1/2" long metal casing. Casing has coarse pitch thread on to which a nut has been threaded. When nut is rotated, "clicks" can be felt & heard. Using u-100 insulin, each click represents 5 units of insulin (with u-40, 2 units). Varying doses of insulin, in multiples of 5 or 2, can be drawn up.	Available from AFB only ($24.00 for device, $3.50 for replacement glass barrel)
IDM	Andros Analysers, Inc. 2332 Fourth Street Berkeley, CA 94710 (415) 849-1377	Gauges for use with B-D 1cc u-100 syringe only. Plastic gauge that is cut off at place designated for selected number of units to be drawn up. Can use multiple gauges for mixed and/or varying dosages.	Available from Andros- 1-9 $2.75 each 10-99 $2.50 each 100-499 $2.30 each 500-999 $2.10 each 1000 or more $1.85 each
Inject-Aid	George Wright Industries 82 West Lakeshore Drive Lincoln, NE 68528 (402) 477-1382	A syringe and vial holder which has an adjustable plunger stopper to allow drawing up of a pre-set dose. Can use multiple devices for mixed and/or varying dosages (Can use vial sleeve for Nordisk insulin bottles).	Available from George Wright Industries ($6.95)

Insulgages (+stand)	Meditec, Inc. 9485 E. Orchard Drive Englewood, CO 80111 (303) 771-4863	Guides are made specifically to measure a specific dosage of insulin in a B-D or a Monoject 1cc syringe. Can use multiple guides for mixed and/or varying dosages. Labels on guides can be printed,raised numbers, braille,or raised numbers & braille. (Company says that in 1989 they will start marketing gauges for B-D lo-dose syringes).	Guides range in price from $6.95 to $11.75 depending on type and amount (1, 2, or 3 or more). Stand costs $1.00
Morris Watts Insulin Gauge	The Canadian National Institute for the Blind 350 East 36th Avenue Vancouver, BC V5W 1C6 CANADA	Use with any syringe. Stops can be preset to draw up 2 different dosages or a mixed dose.	Available from the CNIB ($5.00)
Robinject	Manufactured in Europe. AFB & Diabetes Supplies are USA distributors	Draws up a single or mixed dose of insulin and then, by spring action, inserts needle into injection site. VCR tape available from Diabetes Supplies.	Available AFB and Diabetes Supplies (Prices may vary)
3/10cc Syringe	Becton Dickinson Consumer Products Becton Dickenson & Co. Franklin Lakes, NJ 07417-1883	Syringe fills to a maximum of 30 units, but has an easier to read scale. Cannot be used in combination with most other aids including B-D's Magni-Guide.	Available locally, from catalogs, and thru 800 #'s

Unicalaid	The Canadian National Institute for the Blind 350 East 36th Avenue Vancouver, BC V5W 1C6 CANADA	Use with any 1 cc syringe. Stops can be preset to draw up 2 different dosages or a mixed dose. Unit also holds insulin bottle. (Can use vial sleeve for Nordisk insulin bottles).	Available from CNIB ($14.50)

NOTES: With any of these devices where a dosage is drawn up to a preselected setting or measurement, the preselected setting or measurement should be checked periodically by a sighted individual.

When using these products, rather than eyesight, to measure insulin, make sure there is a mechanism in place to assure that the person is drawing up insulin, not air. (example--plan on changing to a new bottle before needle tip would go above the level of insulin in an inverted bottle. Calculate how many dosages can be withdrawn and set out that many syringes. When they are used up, a new bottle needs to be used.)

Watch for a new product from Autoject Systems during 1989 called Dosetter which will be helpful in drawing up and measuring mixed doses of insulin.

Diabetes Aids/Products For People With Visual or Physical Impairment: Drawing up Insulin

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Dos-Aid (+Vial Sleeve)	American Foundation for the Blind Consumer Services 15 West 16th Street New York, NY 10011 (201) 862-8838	Adjustable volume regulator which can be set by sighted person. Uses disposable u-100 1cc syringes. Holds insulin bottle and syringe. Not for mixed or changing doses. (Use vial sleeve for Nordisk insulin bottles).	Available from AFB only (19.50 for Dos-Aid, $6.50 for Vial Sleeve)
Holdease	Meditec, Inc. 9485 E. Orchard Drive Englewood, CO 80111 (303)-771-4863	Enables person to hold syringe and vial in one hand. Guides needle into rubber stopper. Works well in combination with Insulgages. Can use vial sleeve for Nordisk insulin bottles.	Available from Meditec ($12.75)
Inject-Aid	George Wright Industries 82 West Lakeshore Drive Lincoln, NE 68528 (402) 477-1382	A syringe and vial holder which has an adjustable plunger stopper to allow drawing up of a pre-set dose. Can use multiple devices for mixed and/or varying dosages. (Use vial sleeve for Nordisk insulin bottles).	Available from George Wright Industries ($6.95)
Injection Safety-Guard	Falgro International Corporation 300 71st Street #435 Miami Beach, FL 33141 (305) 861-8227	Plastic Disc (1 3/4" diameter)slips over cap on bottle & prevents fumbling and dropping bottles. Can still prick self thru slits in guard. Can help with seeing rubber stopper	Available from Falgro and available locally, from catalogs and thru 800 #'s ($1.39)

Insul-eze	Palco Labs 1595 Soquel Drive Santa Cruz, CA 95065 1-800-346-4488 (CA: 408-476-3151)	Devices (1/2 cc and 1 cc size) that hold insulin bottle (using adapter for Nordisk) and syringe and direct needle into stopper and magnify scale. Bottles can be changed without removing syringe from device. (Palco is working on a measuring device which will attach to an Insul-eze and measure varying dosages.)	Available locally, from catalogs and thru 800 #'s
Insulin-aid	Seabee Corporation P.O. Box 457 Hampton, IA 50441 (515)456-4871	Plexiglass device into which a vial of insulin can be placed with rubber stopper area protruding. A magnet on back allows attachment to a metallic surface. Two hands may then operate syringe.	Available from Seabee and available locally, from catalogs and thru 800 #'s
Insulin Needle Guide	American Foundation for the Blind Consumer Services 15 West 16th Street New York, NY 10011 (201) 862-8838	Funnel shaped top on round cap, fits onto Lilly or Squibb bottles. Guides needle into rubber stopper.	Available from AFB ($4.00)
Magni-Guide	BECTON DICKINSON Consumer Products Becton Dickinson & Co. Franklin Lakes,NJ 07417-1883	Snaps onto Lilly, Nordisk, & Squibb-Novo insulin bottle caps. Doubles as needle guide into vial stopper. Magnifies entire scale x2. Usuable with 1cc & 1/2cc insulin syringes. DO NOT IMMERSE.	Available locally from catalogs and thru 800 #'s

Nordisk Insulin Bottles	Nordisk-USA 3202 Monroe Street Suite 100 Rockville, MD 20852	Metal bands which hold rubber stoppers in place have raised dots (1,2 or 3) to indicate type of insulin.	Available locally from catalogs and thru 800 #'s
Nordisk Mixtard	Nordisk-USA 3202 Monroe Street Suite 100 Rockville, MD 20852	Human mixture and purified pork mixture of 70% NPH 30% Reg } Insulin	Available locally from catalogs and thru 800 #'s
Squibb-Novo Novolin 70/30	E.R. Squibb & Sons 211 Carnegie Center Princeton, New 08540 1-800-334-3678 (NJ: 1-800-367-0249)	Human mixture of 70% NPH 30% Reg } Insulin (Available in 10cc bottles and in "Pen-fills" which are used in NovoPen, NovolinPen and AccuPens).	Available locally from catalogs and thru 800 #'s
Unicalaid	The Canadian National Institute for the Blind 350 East 36th Avenue Vancouver, BC V5W 1C6 CANADA	Use with an 1cc syringe. Stops can be preset to draw up 2 different dosages or a mixed dose. Unit also holds insulin bottle. (Can use vial sleeve for Nordisk insulin bottles).	Available from CNIB ($14.50)
Vial Center-Aid	George Wright Industries 82 West Lakeshore Drive Lincoln, NE 68528 (404) 477-1382	Funnel shaped top, fits onto Lilly & Squibb bottles. Guides needles into rubber stopper center.	Available from George Wright Industries ($3.95)

NOTE: Watch for a new product from Autoject Systems during 1989 called Dosetter which will be helpful in drawing up and measuring mixed doses of insulin.

Diabetes Aids/Products For People With Visual or Physical Impairment: Prefilled Syringes

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
AccuPen	Ulster Scientific Inc. P.O. Box 902 Highland, NY 12528 (914) 795-2522 1-800-431-8233 (NY: 1-800-522-2257)	Uses commercially prepared Squibb-Novo Penfills. 2 different AccuPens available; one delivers 2-28 units in 2 unit increments; other delivers 1-14 units in 1 unit increments. Need 2 hands to inject. Visual,audible & tactile dialing of dose. Need separate pens for different types of insulin.	Available locally, from catalogs, or thru 800 #'s
Control Injection Monitor Kit	Mustang Enterprises,Inc. Injection Monitor Div. P.O. Box 748 Geneva, IL 60134 IL: 312-232-1373 1-800-426-6390	Compartmentalized box that holds a weeks supply of equipment for injecting insulin. Model available for storing prefilled syringes. (All types at all possible dosages may not fit.)	Available from company ($39.95 + $3.00 shipping and handling)
NovoPen	Squibb-Novo Inc. 211 Carnegie Center Princeton, NJ 08540 1-800-334-3678 (NJ: 1-800-367-0249)	Uses PenFills (available in Novolin R,N or 70/30). Delivers 2 or more units of insulin in 1 or 2 unit increments. Can be operated by one hand during injection. Need separate pens for different types of insulin.	Available locally, from catalogs, or thru 800 #'s

NovolinPen	Squibb-Novo Inc. 211 Carnegie Center Princeton, NJ 08540 1-800-334-3678 (NJ: 1-800-367-0249)	Uses PenFills (available in Novolin R,N or 70/30). Delivers 2-36 units of insulin in 2 unit increments. Dosage pre-set with sound & tactile cues. Dosage delivered remains marked on Pen until manually reversed. Teaching flip chart, video tape available.	Available locally, from catalogs, or thru 800 #'s

NOTES: Watch for two new pen-type products from Nordisk during 1989, Insuject and Insuject-X.

If pre-mixing syringes, review "The Patient's Page: Mixing Insulin" from the September/October 1985 issue of Clinical Diabetes or "Maxims for Mixing Insulin" from the Summer Issue of Diabetes '86.

Diabetes Aids/Products For People With Visual or Physical Impairment: Injecting Insulin

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Autojector	Ulster Scientific P.O. Box 902 Highland, NY 12528 (914) 795-2522 1-800-431-8233 (NY: 1-800-522-2257)	Can use most insulin syringes with permanently attached needles. After compatible syringe has been loaded, syringe is placed inside unit with adjuster placed and turned to correct setting. Can then inject with one hand.	Available locally, from catalogs, and thru 800 #'s
Busher Automatic Injector and Adapters	Becton Dickinson Consumer Products Becton Dickinson & Co. Franklin Lakes, NJ 07417-1883	Preloaded syringe can be inserted into this device. When device is in place, a trigger is depressed & needle enters skin at an angle of approx. 45°. (Adapter for B-D syringes-1cc glass, 1/2 and 1cc disposable).	Available locally, from catalogs, and thru 800 #'s
Button Infuser	Markwell Medical Institute, Inc. P.O. Box 5173 Racine, WI 53405 (414) 632-3841	Small plastic "porthole" for facilitating injection with a regular syringe. The device includes a 27 guage needle which is inserted into abdomen and taped (included) in place. Insulin then injected through resealable cap.	Available locally, from catalogs, and thru 800 #'s

Diajector	Diajector, Inc. P.O. Box 306 Youngstown, PA 15696 (412) 539-0263	Preloaded syringe ("most standard size syringes") can be placed inside device. Then cock unit and set for desired depth of injection. Needle enters skin when unit is pressed against site. Has lancet adapter for blood glucose monitoring punctures. NOTE: brochure shows incorrect place for injection.	From company ($87.50)
Diamatic	Made in Germany by Wilhelm Haselmeier GMBH& Co. Imported by: Ulster Scientific P.O. Box 902 Highland, NY 12528 (914) 795-2522 1-800-431-8233 (NY: 1-800-522-2257	Similar to Autojector but made of metal rather than plastic. Accepts any disposable syringe with permanently attached needle. Has depth of injection adjustment.	Call "Diabetes Supplies" ($129) or Ulster Scientific ($129.50)
Inject-Ease	Palco Labs 1595 Soquel Drive Santa Cruz, CA 95065 1-800-346-4488	A device which (with accompanying modifications) accepts most disposable syringes. Device is easily triggered to inject needle thru skin. Modifications are also available if person aspirates syringe.	Available locally from catalogs, and thru 800 #'s

Injection-Aide	Gottinger Company, Inc. 264 15th Street Fond du Lac, WI 54935 (414) 922-1349	For use in injecting arm or leg. Device accepts filled syringe onto a spring-loaded plate. The plate is affixed to injection site by a rubber covered metal clamp which bunches the skin. The needle injects the skin at an angle of approx. 45° by release of springlock. Needle is withdrawn by pushing plate again into loaded position.	Available from Gottinger ($24.95 + $3.00 postage and handling.)
Injectomatic	Sherwood Medical St. Louis, MO 63166	Two different models; one for 1/2 cc Monoject and other for 1 cc Monoject syringe. After inserting loaded syringe, cock unit. When pressed against injection site, needle is injected through skin.	Available locally, from catalogs, and thru 800 #'s
Instaject I	Jordan Enterprises 12555 Garden Grove Blvd Suite 507 Garden Grove, CA 92643 1-800-541-1193 (CA: 714-530-5123)	Accepts any loaded syringe. Upon release of a trigger, needle injects through skin. Has aspiration window. One hand operation.	Available from Jordon Enterprises ($59.95)

Instaject II	Jordan Enterprises 12555 Garden Grove Blvd Suite 507 Garden Grove, CA 92643 1-800-541-1193 (CA: 714-530-5123)	Accepts any loaded syringe. Upon release of a trigger, needle injects through skin. (Has a lancet module that can be added for blood glucose monitoring punctures).	Available from Jordon Enterprises ($49.95)
Ject-Aid	AutoJect Systems,Inc. P.O. Box 2687 1001 E. Morton Place Hemet, CA 92343 (714) 652-4163	Accepts loaded 1/2cc B-D disposable syringe. When pressed against injection site, trigger device is activated and needle is inserted into skin and insulin is injected automatic-ally. Recock to remove syringe which pops out easily. Comes with spacer for adjustable needle depth.	Available from AutoJect Systems,Inc. ($39.95) or Direct Medical Equip-ment & Supplies 9609 Gayton Rd. Richmond, VA 23233 1-800-344-3679 (804) 741-9999 FAX: (804) 741-5325

Diabetes Aids/Products For People With Visual or Physical Impairment: Needleless Injectors

PRODUCT	COMPANY	DESCRIPTION	AVAILABILITY
Bioject	Bioject, Inc. 630 Parkside Center 2020 S.W. Fourth Ave. Portland,Oregan 97201 (503) 221-4208	Needle-free injection system that needs only one hand to inject. Holds up to 50 units which is drawn up in a syringe. Syringe is then placed inside this unit which by a CO gas cartridge (good for 5 injections) injects insulin without a needle puncture.	Check with company for local representative & availability.
Medi-Jector EZ	Derata Corporation 6701 Parkway Circle Suite 100 Minneapolis, MN 55430 1-800-328-3074 (MN: 612-566-1202 collect)	Needle-free injection that needs only one hand to inject. Holds 2 to 50 units - can be mixed. Video tape to learn how to use this equipment.	Check with Derata for closest location to purchase.
Medi-Jector II	Derata Corporation 6701 Parkway Circle Suite 100 Minneapolis, MN 55430 1-800-328-3074 (MN: 612-566-1202 collect)	Needle-free injection that needs only one hand to inject. Holds up to 100 units- can be mixed.	Check with Derata for closest location to purchase.
Preci-Jet 50	Home Diagnostics, Inc. 6 Industrial Way West Eatontown, NJ 07724 1-800-DIASCAN (NJ: 201-542-7788)	Needle-free injection system that needs only one hand to inject. Holds 0.5-50 units - can be mixed. Has audible & tactile cues to amount of insulin drawn into unit.	Check with Home Diagnostics for closest location to purchase.

Tender Touch	Derata Corporation 6701 Parkway Circle Suite 100 Minneapolis,MN 55430 1-800-328-3074 (MN: 612-566-1202 collect)	Like Medi-Jector EZ but has 14 pressure settings specifically calibrated for children and has an approx. 20% smaller injection nozzle opening.	Check with Derata for closest location to purchase.
Vitajet	Mada Equipment Co. Inc. 60 Commerce Road Carlstadt, NJ 07072 1-800-VITAJET	Needle-free injection system that needs only one hand to inject. Holds 2-50 units of insulin - can be mixed. Video tape to learn how to use this equipment.	Check with Mada for closest location to purchase.

Telephones:

American Foundation for the Blind
15 West 16th Street
New York, New York 10011

Push Button Phone Attachment $6.75
Raised Large Print Telephone Dial $1.00
Voice Dialer Telephone $135.00

American Telephone & Telegraph
National Special Needs Center
2001 Route 46 Suite 310
Parsippany, NJ 07054-1315
1-800-233-1222

Large Number Dial Overlay (write for - free)
"Product Catalog" contains many other specialty phones)

Bruce Medical Supply
411 Waverly Oaks Rd.
P.O. Box 9166
Waltham, Massachusetts 02254-9166
1-800-225-8446

Big Button Speakerphone $79.95
Phone Flasher $22.95
Telephone Amplifier $11.95

Hammacher Schlemmer
1-800-543-3366

Voice-Activated Telephone $449.95

Independent Living Aids, Inc.
27 East Mall
Plainview, NY 11803

Large Print Telephone Dial $.88
"Touchables" $7.95
Jumbo Button Telephone $37.95
Big Button Telephone $49.95

National Association for Visually Handicapped
22 West 21st St. (6th floor)
New York, NY 10010
or
320 Balboa St.
San Francisco, CA 94121

Enlarged Telephone Dial $2.25
"Touchable" $10.00

New York Lighthouse Optical Aids Service
36-20 Northern Blvd.
Long Island City, NY 11101
1-800-453-4923
NY 718-937-9338

Large Print Telephone Dial
Touchable Telephone Dial

Science Products
Box 888
Southeastern, PA 19399
1-800-888-7400

Phone Button Enlarger
$7.50

Catalogs:

American Diabetes Association
National Service Center
1660 Duke Street
Alexandria, VA 22314
1-800-ADA-DISC

"Publications Catalog" lists the
"Large Print Exchange Lists for Meal Planning"
Non-member $3.25
Member $2.60

American Foundation for the Blind
15 West 16th Street
New York, N.Y. 10011

"Products for People with Vision Problems"
(Available also in braille)

Channing L. Bete Co., Inc.
200 State Street
South Deerfield, MA 01373
413-665-7611
FAX: 413-665-3355

Large print booklets on a variety of health care topics including "About Diabetes".
(Minimum quantity to purchase is 25 at $1.10 each. Lower prices with higher numbers and booklets can be personalized.)

Independent Living Aids, Inc.
27 East Mall
Plainview, N.Y. 11803

"Independent Living Aids, Inc. Can-Do Products"

Science Products
Box 888
Southeastern, PA 19399
1-800-888-7400

"Vision Aids Resource Guide"

800 #'s:

Diabetes Center Pharmacy 1-800-848-2793 (In MN 612-541-0239 collect)

Diabetes Supplies 1-800-6-CALL US (1-800-622-5587)

Diabetic Express 1-800-338-4656 (In OH 1-800-338-4657)

Diabetic Promotions 1-800-433-1477 (In OH 1-800-334-1377)

Dolby Scientific 1-800-345-8246 (In PA 1-800-662-2418/In Phil. 215-622-7300)

Jeri's Medical 1-800-451-9056

H-S Medical Supplies 1-800-344-7633

Home Med Care Center, Inc. 1-800-247-6367 (In OK - collect (405) 672-3232)

Hospital Center Pharmacy 1-800-824-2401
(In MS 1-800-462-1122)

Jocelyn Bischoff's Diabetic Supplies 1-800-537-0404

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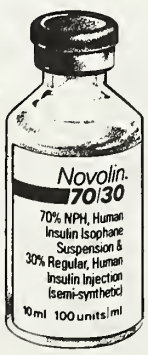
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*NOTE: When ordering insulin by mail or phone, it is helpful to have a box top or used bottle nearby to make sure the brand and type of insulin are accurate.

SYRINGES/NEEDLES

#IS8471 B-D ½ cc SYRINGES (30) (Micro-fine III) $6.50/bx
#IS1461 B-D ½ cc SYRINGES (100) (Micro-fine III) 18.50/bx
#IS5461 B-D ½ cc SYRINGES (500) (Micro-fine III) 89.97/cs
#IS1410 B-D 1 cc SYRINGES (100) (Micro-fine III) 18.50/bx
#IS5410 B-D 1 cc SYRINGES (500) (Micro-fine III) 89.97/cs
#IS8430 B-D - 3/10 cc SYRINGES (100) (Micro-fine III)
(for 30 units or less) 18.50/bx
#IS5430 B-D 3/10 cc SYRINGES (500) (Micro-fine III) 89.97/cs
#IS0038 MONOJECT ½ cc SYRINGES (30) 6.49/pk
#IS1004 MONOJECT ½ cc SYRINGES (100) 17.99/bx
#IS3004 MONOJECT ½ cc SYRINGES (300) 53.59/cs
#IS1135 MONOJECT 1 cc SYRINGES (30) 6.49/pk
#IS1101 MONOJECT 1 cc SYRINGES (100) 17.99/bx
#IS3101 MONOJECT 1 cc SYRINGES (300) 53.59/cs
#IS2101 TERUMO 1 cc SYRINGES (100) 12.50/bx
#IS2105 TERUMO ½ cc SYRINGES (100) 12.50/bx
#IS2049 B-D .35 cc GLASS SYRINGE 15.66/ea
#IS2029 B-D 1 cc GLASS SYRINGE 15.66/ea
#DA5235 PENNEEDLE DISPOSABLE
NEEDLES (100) (NovoPen) 10.80/bx

— ALCOHOL PREPS —

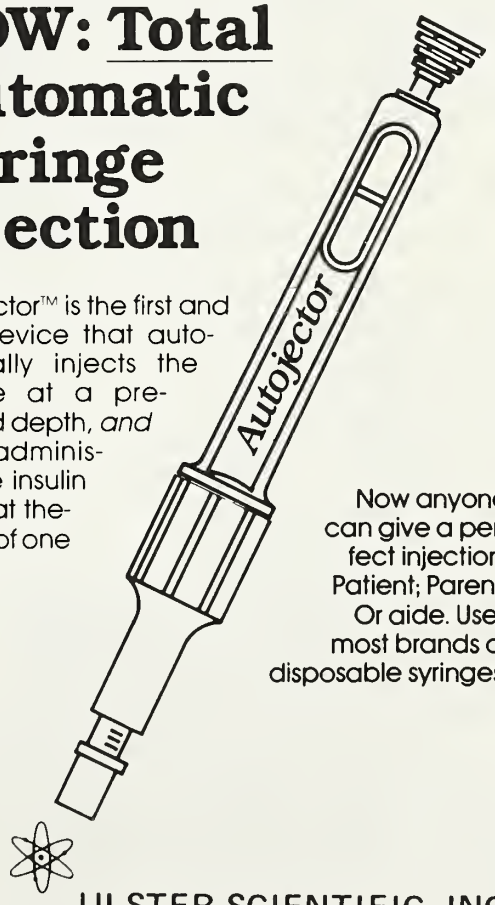
##DA6894 B-D ALCOHOL PREPS (100) 1.95/bx
#DA6895 GENERIC ALCOHOL PREPS (100) 1.50/bx

— INJECTION AIDS —

#DA5230 NOVOPEN INSULIN DELIVERY DEVICE $95.00/ea
#DA2121 ACCUPEN (USI) (see product info.)
2 unit increment 59.95/ea
#DA2171 ACCUPEN (USI)
1 unit increment 59.95/ea
#DA8233 MAGNI-GUIDE (B-D) (see product info.) 3.99/ea
#DA8235 SAFE-CLIP (detaches needles from syringes).....3.99/ea
#DA0612 INSULIN-AID (holds vial w/magnet) 8.95/ea
#DA0003 VIAL CENTER AID (to center needle on vial) 2.75/ea
#DA1111 INJECTION SAFETY GUARD (snaps on vial) .... .99/ea
#DA0002 INJECT AID (especially for visually impaired,
set dose) (see product info) 4.95/ea
#DA3021 BUSHER AUTOMATIC INJECTOR (for B-D
syringes) adapter required 22.95/ea
ADAPTERS FOR B-D SYRINGES ONLY
#DA8479 for 1 cc disposable 1.59/ea
#DA3015 for ½ cc disposable 1.59/ea
#DA8499 for 1 cc glass 1.59/ea
#DA1200 AUTOJECTOR (USI) (see product info.) 39.95/ea
#DA2901 MONOJECT INJECTOMATIC for 1/2cc 19.00/ea
#DA2927 MONOJECT INJECTOMATIC for 1cc 19.00/ea
#DA4000 PALCO INJECT-EZE (see ad) 24.95/ea
#II0101 BUTTON INFUSER (1).....3.00/ea
#II0100 BUTTON INFUSER (10).....27.50/bx
#IS0104 CLICK COUNT (for visually impaired) reusable
glass syringe; requires disposable needles 30.00/ea

NOW: Total Automatic Syringe Injection

Autojector™ is the first and only device that automatically injects the needle at a prescribed depth, *and* also administers the insulin . . . all at the touch of one button.



Now anyone can give a perfect injection: Patient; Parent; Or aide. Uses most brands of disposable syringes.

USI ULSTER SCIENTIFIC, INC.

NEEDLELESS INJECTORS

#II6100 MEDI-JECTOR II (accepts up to 100 units and comes with 6 adapters) $825.00
#II8001 MEDI-JECTOR E.Z. (accepts up to 50 units and comes with 6 adapters) 695.00
#II0050 PRECI-JET 50 (with 6 vial adapters) 595.00
(Pressure injectors available in retail outlets only and require physician's approval)

— ACCESSORIES —

#II0002 MEDI-JECTOR II OR LV VIAL HOLDER (short vials) $5.00/ea
#II0004 MEDI-JECTOR II OR LV VIAL HOLDER (long vials) 7.50/ea
#II1001 MEDI-JECTOR EZ ADAPTERS (3/pk) 8.95/pk
#II0005 MEDI-JECTOR II OR LV ADAPTER 3.00/ea
#II1101 MEDI-JECTOR II OR LV ADAPTERS (12/pk) 34.58/pk
#II0060 PRECI-JET VIAL ADAPTERS (6/pk) 16.95/pk
#II0012 CLEANING SOLUTION (MEDI-JECTOR) 1.50/vl
#II0006 SALINE SOLUTION (all injectors) 1.50/vl

PUMP THERAPY

— INSULIN PUMPS —

#II9260 MEDIX INFUSION PUMP $995.00
#II9200 CPI BETATRON II™ & STARTER KIT 3250.00
#II8413 A-S EUGLY INSULIN PUMP (AS8MP) 3295.00
#II1900 BECTON DICKINSON MODEL 1000 INFUSION PUMP AND STARTER SYSTEM 2000.00
#II1901 BECTON DICKENSON MODEL 2000 INFUSION PUMP AND STARTER SYSTEM 2500.00
#II0504S MINIMED SPLASHPROOF INFUSION PUMP AND STARTER SYSTEM 3195.00

NOTE: All insulin pumps require physician's prescription

— SYRINGES/RESERVOIRS/NEEDLES —

#II9010 CPI 3 cc SYRINGE (1) 9100 PUMP $1.00/ea
#II9110 CPI 3 cc SYRINGES (30) 22.00/bx
#II9201 CPI RESERVOIR (1) BETATRON PUMPS 1.30/ea
#II9210 CPI RESERVOIRS (30) 32.00/bx
#II9005 MEDIX 1 cc SYRINGE (1) ..... .50/ea
#II9006 MEDIX 1 cc SYRINGES (100) 30.00/bx
#II1362 27 GAUGE x ½" NEEDLE (1) ..... .20/ea
#II0362 27 GAUGE x ½" NEEDLES (100) 13.68/bx
#II8088 A-S (Burron) 1 cc SYRINGE (for AS6MP pump) (1) 1.25/ea
#II8488 A-S (Burron) 1 cc SYRINGE (for AS6MP pump) (30) 32.00/bx
#II8075 A-S 1.2 cc RESERVOIR (1) (for 8MP Eugly) 1.75/ea
#II8475 A-S 1.2 cc RESERVOIR (30) (for 8MP Eugly) 35.00/bx
#II8079 A-S 3 cc RESERVOIR (1) (for 8MP Eugly) 2.75/ea
#II8479 A-S 3cc RESERVOIR (30) (for 8MP Eugly) 57.00/bx
#II0103 MINIMED SYRINGES, 3 ml (30) 35.00/bx

— INFUSION SETS/EXTENSION SETS —

#II9020 CPI 20" INFUSION SET (1) $3.00/ea
#II9120 CPI 20" INFUSION SETS (30) 77.00/bx
#II9022 CPI 20" INFUSION SETS, Pre-bent needle (1) 3.00/ea
#II9122 CPI 20" INFUSION SETS, Pre-bent needle (30) ... 77.00/bx
#II9021 CPI 40" INFUSION SET (1) 3.00/ea
#II9121 CPI 40" INFUSION SETS (30) 78.00/bx
#II9023 CPI 40" INFUSION SETS, Pre-bent needle (1) 3.00/ea
#II9123 CPI 40" INFUSION SETS, Pre-bent needle (30) ... 78.00/bx
#II9025 CPI 40" EXTENSION SET (1) 3.00/ea
#II9125 CPI 40" EXTENSION SETS (30) 76.00/ea
#II9026 CPI TEFLON CANNULA (1) 2.50/ea
#II9126 CPI TEFLON CANNULAS (30) 55.00/bx
#II2441 24" INFUSION SET (1) winged 1.50/ea
#II8410 A-S 24" INFUSION SET (1) 2.50/ea
#II8450 A-S 24" INFUSION SET (30) 66.00/bx
#II8051 A-S 42" INFUSION SET (1) 2.50/ea
#II8451 A-S 42" INFUSION SET (30) 66.00/bx
#II8063 A-S 42" SUB Q SET (1) 4.00/ea
#II8463 A-S 42" SUB Q SET (30) 100.00/bx
#II1028 DELTEC INFUSION SET 40" (1) 2.50/ea
#II1027 DELTEC INFUSION SET 40" (10) 19.50/bx
#II0107 POLYFIN 42" Infusion Set Pre-bent needle (1) 2.95/ea
#II0106 POLYFIN 42" Infusion Set Pre-bent needle (30) ... 80.00/bx
#II0113 MINIMED SOFSET 42" Teflon cannula (25/bx) 124.00/bx
#II1915 20" INFUSION SET (BD) (30) 58.50/bx
#II1916 40" INFUSION SET (BD) (30) 58.50/bx

— TAPES/DRESSINGS —

#II1149 MICROPORE TAPE ½" x 10 yds $1.19/rl
#II1156 MICROPORE TAPE 1" x 10 yds 1.98/rl
#II1528 TRANSPORE TAPE ½" x 10 yds 1.59/rl
#II1527 TRANSPORE TAPE 1" x 10 yds 2.39/rl
#II0625 TEGADERM DRESSING (1) 2 x 2¾" 1.00/ea
#II1625 TEGADERM DRESSINGS (100) 2 x 2¾" 85.00/bx

— PUMP BATTERIES AND CHARGERS —

#II9130 CPI 9100 BATTERY PACK 22.00/ea
#II9140 CPI 9100 BATTERY HOLDER (Requires charger) .. 17.00/ea
#II9142 CPI 9100 110V CHARGER 12.00/ea
#II9145 CPI 12V AUTO CHARGER (9100) 12.00/ea
#II0104 MINIMED BATTERIES (9/pk) 15.95/pk
#II9230 BETATRON BATTERY PACK 25.00/ea
#II9240 BETATRON BATTERY HOLDER (Requires charger) 52.00/ea
#II9242 BETATRON 110V CHARGER 12.00/ea
#II9245 BETATRON 12V AUTO CHARGER 12.00/ea
#II9250 BETATRON CARRYING POUCH 17.00/ea
#II9231 BETATRON BACKUP BATTERY 6.00/ea
#II8426 EUGLY BATTERY 18.00/ea
#II8425 EUGLY BATTERY CHARGER 35.00/ea

Contact us for any pump supplies not listed

— PUMP ACCESSORIES —

#II0239 CPI 9100 BATTERY COVER $6.00/ea
#II0240 CPI 9100 SYRINGE COVER 9.00/ea
#II0326 BETATRON RESERVOIR COVER 9.00/ea
#II0345 BETATRON BACK UP BATTERY COVER 9.00/ea
#II1115 BETATRON BATTERY COVER 6.00/ea
#II1023 CPI 9100 CARRYING POUCH 16.00/ea
#II1032 CPI BELT HARNESS (9100) 17.00/ea
#II4648 9100 DRIVENUT/LEADSCREW 12.00/ea
#II0115 MINIMED CARRYING POUCH (Eelskin) 25.00/ea
#II0117 MINIMED SHOWER COVERS (30/pk) 7.95/pk
#II1905 BD CASSETTE RESERVOIR (30/pk) 37.50/pk
#II1906 BD CASSETTE RESERVOIR 1.50/ea
#II1935 BD PUMP COVER 3.50/ea
#II1936 BD BATTERY COVER 4.50/ea
#II1937 BD PUMP 1.5 VOLT BATTERIES (2/bx) 5.50/bx
#II1938 BD PUMP POUCH 8.95/ea
#II8490 EUGLY PUMP COVER (grey leather) 30.00/ea

BLOOD-GLUCOSE MONITORS

Name and Manufacturer	Sugg. List Price	Size (inches)	Wgt. (ounces)	Test Strip Used	Range (mg/dl)	Test Time	Battery	Warranty	How Calibrated	Control Sol.	Features
Accu-Chek II (Boehringer Mannheim)	$139.95 $168.00 (Kit)	3.1 × 5.9 × 0.9	7	Chemstrip bG	20-500	2 mins.	1-J type (1000 tests)	2 yr.	by lot with strip packed with each bottle of test strips	yes	Cassette instruction tape; Technique error notification; Strip guide removable for cleaning
BetaScan Audio (Orange Medical Instruments)	$480	3.9 × 6.7 × 1.2	10	TrendStrips	0-400	2 mins.	rechargeable battery, charger supplied	1 yr.	automatic self-calibration	yes	Audible readout of test results; Cassette instruction; Red LED display; Confidence strip supplied; Warning buzzer sounds when machine on but not in use
Diascan-S (Home Diagnostics, Inc.)	$149.00	3.1 × 5.2 × 0.6	4.8	Diascan	10-600	90 sec.	1-J type (1500 tests)	2 yr.	by lot with user entering calibration code	yes	Extreme temperature warnings, below 41°F reads *cold* and above 98°F reads *hot;* Confidence strip supplied; Technique error notification; Has memory of last 10 readings; Audio signal emitted during test process can be turned off
Direct 30/30 Sensor (CPI-Lilly)	$295	2.7 × 4.5 × 0.6	4.1	No test strip required 30 day sensor cartridge	40-400	30 sec.	7-volt battery	1 yr.	User calibrated	yes	Features: Direct sensing of glucose. No wiping, blotting, washing, timing. No strips required—sensor cartridge can run unlimited number of tests for 30 days. Smallest
Glucochek SC (EquiMed Medical Products)	$149	2.7 × 6.5 × 0.9	7	Chemstrip bG	10-400	2 mins.	9-volt alkaline (3000 tests)	2 yr.	calibrates automatically to unreacted test strips	yes	Half strips may be used with adaptor; Strip splitter with adaptor, sugg. retail $29.95; Optional Datalogger stores 400 readings; Datalogger sugg. retail $93.50
Glucochek SC Audio (EquipMed Medical Products)	$399	2.7 × 6.5 × 0.9	7	Chemstrip bG	10-400	2 mins.	9-volt alkaline (3000 tests)	2 yr.	calibrates automatically to unreacted test strips	yes	Electronic tones signal procedure and test results: Cassette instruction as well as braille and large type/ picture instructions; Assistive device for placement of blood on test strips; Confidence strip supplies
Glucometer II (Ames)	$169.95 Kit	2.5 × 5 × 0.9	7	Glucostix	25-399	50 sec.	1/9-volt (1000 tests)	2 yr.	single button calibration by lot of test strips	yes	Cassette instruction tape; Check strips (same as confidence strip); Strip guide removable for cleaning; Automatic turn off after 5 mins.
Glucometer II with memory (Ames)	$179.95 Kit	2.5 × 5 × 0.9	7	Glucostix	25-399	50 sec.	1/9-volt (1000 tests)	2 yr.	single button calibration by lot of test strips	yes	Cassette instruction tape; Check strip (same as confidence strip); Strip guide removable for cleaning; Automatic turn off after 5 mins. Stores up to 26 test results
Glucometer M (Ames)	$299	3.3 × 6.6 × 1.5	11	Glucostix	250-399	50 sec.	1/9-volt	2 yr.	single button calibration by lot of test strips	yes	Cassette instruction; Electronic memory can store up to 338 test results with time and date of each test; Marker buttons enable user to identify special events and delete readings such as control test results and errors; Recall button gives average of all values stored; Allows recovery of specific test results, Optional Glucofacts Data Management System (sugg. retail $419) and Glucofacts Data Printer (sugg. retail $660)
Glucoscan 3000 (LifeScan)	$169.95	2.9 × 5 × 0.8	5	Glucoscan test strips	25-450	1 min.	4 N-cell batteries (2000 tests)	3 yr.	factory calibrated, confirm by check strip	yes	Strips individually foil wrapped; strip guide removable for cleaning. Volume control for audio signals during tests may be turned off. Memory Bank Data Log stores 29 tests sequentially, interfaces with optional Data Manager. (See product info.)
One Touch (LifeScan)	$195 Kit	3 × 5.75 × .95	6	One Touch	0-600	45 sec.	4 N-cell batteries (2000 tests)	3 yrs.	by lot no. by user entering calibration code	yes	Cassette instruction tape. Requires no timing, no wiping, no blotting, no washing. Meter turns on when blood is dropped onto pad. Can store up to 250 previous readings. Can be downloaded & printed into the Data Manager
Tracer (Boehringer Mannheim)	$130	2.5 × 5 × 0.7	3.4	Tracer strips	40-400	2 mins.	6-volt alkaline (2000 tests)	2 yr.	push button calibration by lot with user entering calibration code	yes	Cassette instruction tape; Stores up to seven test results

Impotency/Erection Problems?

*The **SYNERGIST**™ **Erection System** is the IDEAL ANSWER.*

(formerly Correctaid™)

- **No Surgery**
- **No Drugs**
- **No Constricting Parts**
- **No Injections**
- **Safe, Reliable & Comfortable**
- **Educational Videotape, Consultation or Literature available by phone**

You can order direct — No prescription needed

SEE PRODUCT INFORMATION

DIABETES SUPPLIES™

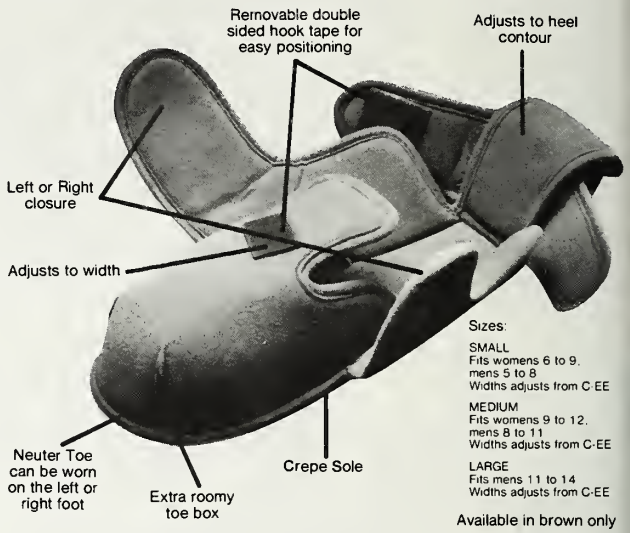
It's time to feel good about yourself.

Available through

DIABETES SUPPLIES™

FlexiShoe™

Completely adjustable for pressure-free comfort



Sizes:

SMALL
Fits womens 6 to 9,
mens 5 to 8
Widths adjusts from C-EE

MEDIUM
Fits womens 9 to 12,
mens 8 to 11
Widths adjusts from C-EE

LARGE
Fits mens 11 to 14
Widths adjusts from C-EE

Available in brown only

U S Patents 3,762,075 and 4,136,468, Canadian Patent 1,092,348; UK Patent GB2014431B

Weighing less than six ounces, the pressure free FlexiShoe™ is constructed of Burr-Lok, a soft, washable, breathable material. FlexiShoe™ is adjustable in length and width and will fit most foot configurations.

PRESENTING DIASCAN-S



For Blood Glucose Self-Monitoring

Simple . . . . . Smart . . . . . Slim . . . . . DIASCAN*-S: The Sensible Choice!

- No door
- Touch calibration
- Durable, easy-to-use strips
- No hanging drop required

- Audible control
- Error codes
- Temperature sensor
- 10-600 mg/dl range
- Automatic memory

- 3x5x½ in. small
- Less than 5 oz. light

HDI • Home Diagnostics, Inc.

6 Industrial Way West Eatontown, NJ 07724

ACCESSORIES FOR THE VISUALLY IMPAIRED

#BG7777 ROBINJECT-robot injection device (see ad; also product info.) 895.00/ea
#BG2223 BETASCAN AUDIO (Orange Medical) (see product info.) 480.00/ea
#BG2700 GLUCOCHECK SC AUDIO (Equimed) (see product info.) 399.00/ea
#DA8233 MAGNI-GUIDE (BD) (see product info.) 3.99/ea
#DA5230 NOVOPEN INSULIN DELIVERY DEVICE (see product info.) 95.00/ea
#DA0612 INSULIN-AID (holds vial with magnet) 8.95/ea
#DA0002 INJECT AID (sets dose) (see product info.) 4.95/ea
#BG0552 ACCU-DROP (see product info.) 12.95/ea
#IS0104 CLICK COUNT (Reusable glass syringe; requires disposable glass needles) 30.00/ea

REACTION AIDS

#IR8230 GLUCOSE TABLETS (6/pack)(B-D) 99/pk
#IR0069 GLUTOSE LIQUID (Paddock) 2.25/ea
#IR6925 GLUCOSE LIQUID (3/pack) 3.49/pk
#IR4631 INSTA-GLUCOSE (1.09 oz. tube) (ICN) 2.75/ea
#IR0059 MONOJECT REACTION GEL (4 pk, 25 gr. ea) ...3.59/bx
#IR5002 FRUIT JERKEY (asst. flavors) 35/ea

GLUTOSE—Re-sealable and re-usable squeeze vial containing 80 grams of dextrose in semi-solid liquid gel (2-3 doses).
B-D GLUCOSE TABLETS—Individually foil wrapped citrus flavored chewable tablets containing 5 grams of dextrose (3 tablets per dose).
INSTA GLUCOSE—Pleasantly flavored 30.8 grams glucose in tube with twist cap.
MONOJECT REACTION GEL—Easy to swallow pleasant tasting gel in foil packets .25 gr. dextrose per pk.
FRUIT JERKEY—Dried fruit strip. Easy to carry in pocket/purse. 60 cal or 1 fruit exchange.

SLEEP SENTRY

Wear on the wrist like a watch. Detects the sweating and drop in body temperature that is associated with insulin reaction. Sounds audible alarm.

#DA4447 SLEEP SENTRY 215.00/ea
#DA1335 SLEEP SENTRY BATTERIES 80/ea

orasept™
ANTISEPTIC
ANESTHETIC
ASTRINGENT

Highly effective for the relief and treatment of:
- Canker Sores
- Cold Sores
- Denture Sores
- Fever Blisters
- Infant Teething
- Other Mouth & Gum Irritantions

Specially MEDICATED to help fight infection. May be used as a mouthwash or gargle to help firm up and stabilize irritated tissues of the mouth and gums commonly caused by diabetes.

PHARMAKON LABS, INC.

IDENTIFICATION

— GOLDEN INGOT —



Golden Ingot products are of the finest quality, made by a craftsman jeweler. The bracelets have the universal medical symbol (youth's have a medical cross); & the pendants have a caduceus. All are engraved "Diabetic on Insulin" on reverse. Non-engraved items are available on request. We firmly believe that these are the best I.D. items of their type available—at competitive prices. We recommend that ***everyone*** seriously consider the timely purchase of I.D. products.

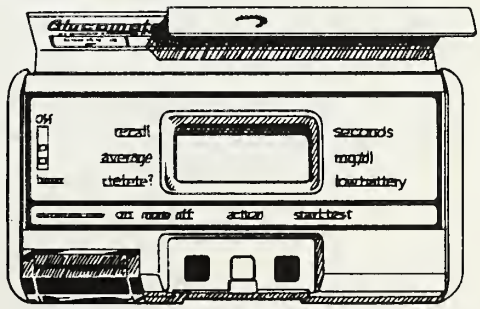
#ID801S STERLING SILVER BRACELET (LADIES) $78.00
#ID5015 STERLING SILVER BRACELET (MENS) 104.00
#ID701S STERLING SILVER BRACELET (YOUTH) 68.00
#ID801G 14K GOLD BRACELET (LADIES) 450.00
#ID501G 14K GOLD BRACELET (MENS) 990.00
#ID701G 14K GOLD BRACELET (YOUTH) 429.00
#ID101S STERLING SILVER PENDANT (SMALL) 48.00
#ID201S STERLING SILVER PENDANT (LARGE) 53.00
#ID101G 14K GOLD PENDANT (SMALL) 143.00
#ID201G 14K GOLD PENDANT (LARGE) 250.00

The Memory

makes blood sugar testing more convenient for the person on the go!

NEW GLUCOMETER®*II BLOOD GLUCOSE METER WITH MEMORY stores up to 26 results as you test, so you can transfer them to your diary later on. Comes with everything you need: starter supply of Glucostix® Reagent Strips, the NEW Glucolet™ Automatic Lancing Device, Clinilog® diary book and a FREE audiocassette that makes learning easy.

ONLY **$179.95** complete kit



Available at DIABETES SUPPLIES™ dr diabetes resource centers

*Glucometer is a registered trademark of Miles Laboratories, Inc.

Ames Division MILES

Ames Division, Miles Laboratories, Inc.
P.O. Box 70, Elkhart, Indiana 46515

The Perfect Gift

Introducing custom designed soft glove
LEATHER CASES
for all your Blood Glucose Monitoring and Diabetes Supplies.



Large: 5½" × 9" × 2" **$49.95**

Small: 3¾" × 7" × 2" **$39.95**

LARGE BAG holds any meter, supplies, insulin, syringes, lancing device injector, log book. Removable shoulder strap.

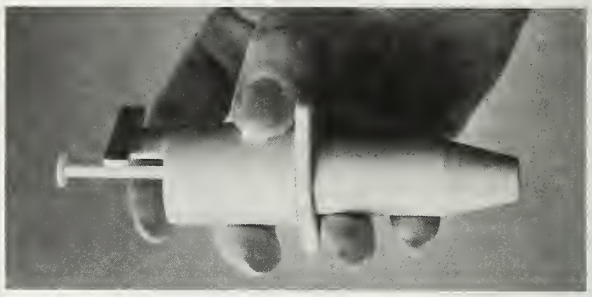
SMALL BAG holds smaller meters (Glucoscan, Tracer, Diascan), and needed blood testing supplies. Inside pocket.

Available in camel, black and grey.

To order call 1-800-6-CALL US
$2 Shipping and Handling. (1-800-622-5587)

DIABETES SUPPLIES™
8181 N. Stadium Drive, Houston, Texas 77054

Here's Inject-Ease... a new injection aid from Palco Labs!



In a newly completed survey, **more than 70%** of diabetics who tried **Inject-Ease** wished to continue using it. Most reported much less pain than with conventional technique and many mentioned the ease reaching difficult injection sites. The Inject-Ease kit includes the device, 1/2cc and 1cc tips and two spacer rings to individualize the depth of needle penetration. Inject-Ease is compatible with Becton-Dickinson, Pharma Plast and EZ-Ject 1/2cc & 1cc disposable insulin syringes.

Inject-Ease makes injections easy and comfortable!

Palco Laboratories

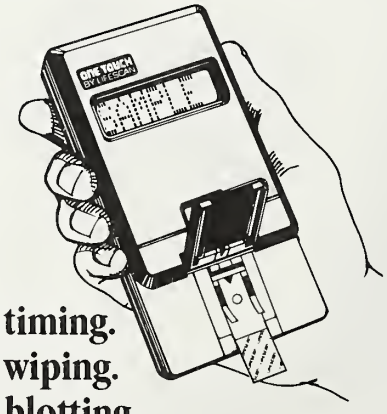
LIFESCAN INC

a Johnson & Johnson company

Offers you this

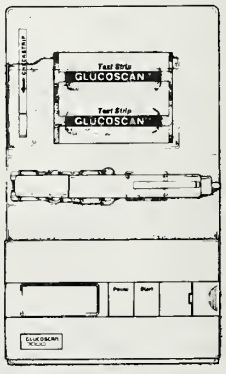
Customer Satisfaction Guarantee:
- 3-year warranty
- No-risk money-back guarantee
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ONE TOUCH™
BLOOD GLUCOSE MONITORING SYSTEM



No timing.
No wiping.
No blotting.

GLUCOSCAN™ 3000



EDUCATION

#ED0011 PREVENTION MAGAZINE
(current month's issue) $1.50/ea

#EDORZ1 SELF TESTING: BLOOD GLUCOSE
MONITORING (Single copy) .....free
"Forecast" 1987 reprint by Eric A. Orzeck, M.D.
This article gives an overview in easy to read table form to the types of blood glucose meters, their price, functions and features. Also includes information on finger lancing devices.

#EDORZ2 WHAT ARE SUGAR COATED CELLS? .....free
by Eric A. Orzeck, M.D. A discussion of HbAlc.

#EDORZ3 HOW TO GIVE GLUCAGON .....free
by Eric A. Orzeck, M.D. Single copy

#EDORZ4 DIABETES & PREGNANCY .....1.00/ea.
by Eric A. Orzeck, M.D.

#ED0404 DIABETES AND ALCOHOL .....1.00/ea.
by Marion J. Franz, M.S., R.D. 4 pages
This pamphlet discusses the effects of alcohol and explains cautions that must be followed if used.

#ED0606 DIABETES AND EXERCISE .....2.00/ea.
by Marion J. Franz, M.S., R.D. 20 pages
Explains the general and diabetes-related benefits of exercise. It contains precautions for people with insulin-dependent diabetes as well as precautions and weight loss tips for people with non-insulin dependent diabetes.

#ED0017 GESTATIONAL DIABETES .....3.00/ea.
Guidelines for a Safe Pregnancy and a Healthy Baby by Marion J. Franz, M.S., R.D. 24 pages
Explains why gestational diabetes develops, how it is related to other types of diabetes, and what must be done to ensure a safe pregnancy, a healthy baby.

#ED0202 ADDING FIBER TO YOUR DIET .....1.50/ea.
Park Nicollet Medical Foundation 10 pages
An explanation of the importance of fiber in the diet, the different types of fiver, and how to add fiber to the diet. Sample menus are included as well as average dietary fiber content of food groups.

#ED0004 NEW EXCHANGE LISTS FOR MEAL PLANNING
(ADA) .....1.50/ea.

— BOOKS —

#ED1557 DIABETES: THE GLUCOGRAF METHOD
FOR NORMALIZING BLOOD SUGAR 8.95
by Richard K. Bernstein, M.D. 294 pages

#ED9064 DIABETES-SELF-CARE METHOD 7.95
by Charles Peterson, M.D. and Lois Jovanovic, M.D.
129 pages.
This is one of the first books to address the need for an ongoing self-care programthrough self testing and insulin adjustment. The book is full of easy to follow charts and diagrams that will aid in a self-care home program.

#ED1JDF DIABETES 8.95
by Lee Ducat & Sherry S. Cohen 253 pages
This is a new and complete guide to healthier living for parents, children and young adults who have insulin dependent diabetes. Lee Ducat is the founder of the Juvenile Diabetes Foundation.

#ED9003 THE PERIPATETIC DIABETIC 7.95
by June Bierman and Barbara Toohey 252 pages
Written in 1969 and updated again in 1984, Barbara and June give a personal look at how you feel when you are first diagnosed, how to overcome that initial fear and move on to a more joyful life. It discusses the contemporary world of diabetes therapy.

#ED9095 THE DIABETIC WOMAN 15.95
by Lois Jovanovic, M.D., June Bierman
and Barbara Toohey 246 pages
This book is a must for the diabetic woman. "In simple language, the trio answer hundreds of questions that burden women with diabetes and substitutes common sense explanations for much of the misinformation that plagues this field."
—Richard K. Bernstein, M.D.

#ED9015 FIT OR FAT 5.95
by Covert Baily 107 pages
The section of the book on fitness presents a 12 minute a day aerobic exercise program that actually changes your metabolism, causing you to burn more calories all day. This is an excellent way for the Type II and Type I diabetic to work in a daily fitness program.

#ED0007 THE DISCOVERY OF INSULIN 10.99
by Michael Bliss 303 pages
This is an exciting account of the struggle to manufacture insulin. An interesting account and worth reading.

— COOKBOOKS AND EXCHANGES —

#ED256X DIABETIC'S BRAND-NAME FOOD
EXCHANGE HANDBOOK 17.95
by Andrea Barrett 176 pages.
Calories and exchanges for 3000 foods from 400 manufacturers plus 10 fast food menus.

#ED0303 EXCHANGES FOR ALL OCCASIONS 8.95
by Marion J. Franz, M.D. 210 pages
This book helps everyone to effectively use the exchange system for meal planning in almost any situation. Included are meal planning suggestions for traveling, entertaining, camping, eating ethnic foods, school lunches, exercising, following a vegetarian diet, parties, and more.

#ED1818 THE JOY OF SNACKS 12.95
by Nancy Cooper, R.D. 269 pages
Nancy Cooper helps you to buy healthy commercial snacks while guiding you through the jungle of nutritional labeling, artificial sweeteners, and high fat recipes. There are over 200 recipes including children's recipes and snacks.

#ED0707 FAST FOOD FACTS 3.59
by Marion J. Franz, M.D. 56 pages
How to enjoy fast foods and still maintain a nutritious and trouble free diet. This book has been updated for 1987 and now contains nutritional information from 26 fast-food chain restaurants. Also contains newest exchange values.

#ED0505 CONVENIENCE FOOD FACTS 8.95
by Arlene Monk, R.D. and
Marion Franz, M.S., R.D. 216 pp.
Revised and Expanded edition, more than 1500 popular name-brand processed foods from 75 companies are included to help plan nutritious and easy meals. Revised exchange values are also included, as well as carbohydrate, protein, fat, and sodium content.

#ED2020 PASS THE PEPPER, PLEASE! 3.95
by Diane Reader, R.D. and
Marion Franz, M.S., R.D. 70 pp.
Pass the Pepper, Please! offers imaginative and clear suggestions for cutting back on salt by nearly 50%, one of the main risk factors for high blood pressure.

#ED9053 THE GUILTLESS GOURMET 9.95
by Judy Gillard and J. Kirkpatrick. 46 pages
A creation of two authors, one trained in classical French cuisine, and the other a licensed dietitician. Contains sophisticated recipes from all over the world, analyzed for the diabetic diet, and low in fat, cholesterol, and salt.

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Cough Syrup

ALCOHOL - FREE **SUGAR - FREE**

ANTITUSSIVE
EXPECTORANT
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Contains No . . .
- Alcohol
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- Antihistamines
- Sugar
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May be used by children 2 years of age and older without the guidance of a physician.

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— COUGH & COLD MEDICINE —

#HA0601 SCOT-TUSSIN DM (4 oz) cough syrup $2.59/bt
#HA3604 SCOT-TUSSIN expectorant (4 oz) 2.59/bt
#HA3010 PHANTUSS COUGH SYRUP 2.49/bt
#HA0115 ORASEPT LIQUID (½ oz.) 2.25/bt

All cough medicines listed contain no sugar. Phantuss cough syrup is also alcohol free.

— FIBER SUPPLEMENTS —

#HA0009 FIBERMED (14) high fiber wafers $3.98/bx
#HA0010 FIBERMED (Flavored) (14) 3.98/bx
#HA3500 FIBER-EXCEL (16 oz) high fiber powder 9.95/cn

Fiber-Excel is a natural dietary fiber supplement that contains no sugar, preservatives or artificial color. Provides 2-4 week supply depending on daily amount needed.

— SKIN PRODUCTS —

#SC0008 ALPHA KERI BATH OIL (8 oz) $5.29/bt
#SC0021 EUCERIN CREAM (16 oz) 9.95/jar
#SC0056 ALPHA KERI LOTION (6.5 oz) 3.89/bt
#SC0111 CARMOL 10 LOTION (6 oz) 3.79/bt
#SC0145 STYPT-AID SPRAY (2 oz)
Antiseptic for cuts/bites 2.49/bt
#SC3040 CARRINGTON FOOT CREAM (4 oz) 4.98/bt
#SC4010 SOOTHADERM LOTION (4 oz) 2.49/bt
#SC8845 LUBRIDERM LOTION (8 oz) 3.69/bt
#SC8846 LUBRIDERM LOTION (16 oz) 6.98/bt
#SC8910 LUBATH BATH/SHOWER OIL (8 oz) .....4.98/bt.
#SC8911 LUBATH BATH/SHOWER OIL (16 oz) .....7.98/bt.

— BLOOD PRESSURE & TEMPERATURE —

#DA4444 HEALTHCHECK BLOOD PRESSURE KIT $69.95/ea
#DA4445 HEALTHCHECK THERMOMETER 24.95/ea
#DA4446 THERMOMETER SHEATHS (50) 3.95/bx
#DA0120 HOT WATER GAUGE 2.50/ea
#DA2713 TERUMO ELECTRONIC THERMOMETER 7.95/ea

— FOOD MEASURING —

#DA5500 KITCHEN DIET SCALE (5 lb capacity) $15.95/ea
#DA3120 DELUXE DIET SCALE (1 lb capacity) 9.95/ea
#DA1952 CALCUDIET D.M. (helps to follow diet) 9.95/ea

— FOOT CARE —

#HA0614 FLEXISHOE (see ad & product info) one shoe ...19.50/ea
#HA0615 FLEXISHOE pair 39.00/pr
Please specify sm, med, lg
SM—Women's 6-9, Men's 5-8
MED—Women's 10-12 Men's 9-11
LG—Men's over 12

— SUGAR FREE CANDY/JELLIES —

#SF0413 DELTY 6 oz. 5.25/bx
#SF0412 DELTY 12 oz. 8.95/bx
#SF0031 DELTY PECAN LOG 7.95/bx
#SF5350 SORBEE LOLLYPOPS ..... .89/bg
#SF5168 SORBEE GOURMET DELIGHT CANDIES 2 oz. .89/bg
#SF5169 SORBEE TROPICAL FRUIT 2oz. ..... .89/bg
#SF401 SORREL RIDGE STRAWBERRY 2oz. (all fruit) .. 2.95/jr
#SF0407 SORREL RIDGE GRAPE 2oz. (all fruit) 2.95/jr
#SF0415 SORREL RIDGE APRICOT 2oz. (all fruit) 2.95/jr
#SF0402 SORREL RIDGE RASPBERRY 2oz. (all fruit) 2.95/jr

PRODUCT INFORMATION

ACCU-DROP:
Designed to deliver a consistent amount of blood to a reagent test strip. The device can be used successfully by the individual who has tremors or neuropathies and delivers a precise, uniform drop of blood for accurate blood glucose testing.

ACCUPEN - by USI
Insulin injecting device using SQUIBB-NOVO cartridges of insulin. Two handed operation using dialing in insulin requirement and twisting motion to inject insulin. One & two unit increment available.

AUTOJECTOR:
Device to rapidly automate injection from a regular disposable syringe at the touch of a button.

BUTTON INFUSER:
Small angled needle and platform with doughnut adhesive that leaves needle in place for 2-3 days. Stem allows for multiple infusions of insulin each day.

DATA MANAGER™ by LifeScan
The Data Manager unit gives you the ability to record, analyze, print and store up to 250 blood glucose readings and insulin doses. It is designed to plot data on chart, flag certain test results & print out data. Used with Glucoscan 3000 and one touch meters.

ELB (ELECTRONIC LOG BOOK) - by Boehringer Mannheim ... available early 1988
Can be used with the newer Accu-Check II meters (purchased since August 1987), with a direct input port, or any other meter or visual testing program by manually entering in data. The ELB stores time, date, blood glucose readings, two insulin doses and two independent behavioral events (diet, exercise). The information can be downloaded to a physician's IBM compatible computer for easy and rapid analysis.

FLEXISHOE - by Bigfoot Specialty Footwear
Weighing less than six ounces, the pressure free FlexiShoe is adjustable in length and width and will accommodate most foot configurations.

HEALTHCHECK DIGITAL BLOOD PRESSURE KIT Made by Timex:
Accurate, easy to operate battery powered, no stethoscope needed. Digital display of systolic/diastol pressures and pulse rate.

INJECT AID:
Plastic housing holds vial of insulin and insulin syringe with adjustable sliding stem that allows for preset fixed number of units to be drawn up. Ideal accessory for the visually impaired.

INJECTION SAFETY GUARD:
Plastic ring that slips over insulin vial neck, to form shield which protects against possible needle puncture.

INSULIN-AID:
Plastic container with magnetic back and open end for insulin vial neck, that attaches to metallic surfaces, freeing up one hand normally needed for holding vial; accepts standard vials.

MAGNI-GUIDE:
Barrel-length plastic magnifier that fits over insulin syringe for easier reading of insulin units. For B-D U-100 syringes only.

MERLIN DIABETES MANAGEMENT SYSTEM - by Boehringer Mannheim ... available early 1988.
Part of the second generation of diabetes management to record and analyze blood glucose data. The system includes the ELB (electronic log book—see product information above), IBM compatible computer software, and a data printer. Call for pricing and date of availability.

MONITORING WALLET:
Carries one week supply of test strips, control, lancing device, syringes, insulin, etc., with velcro closure. Also available in smaller size, the diabetic wallet for daily supply needs.

MONOJECT INJECTOMATIC:
For use with monoject syringes. Helps to insert needle into skin. User must push insulin plunger.

NOVOPEN - by Squibb Novo
Insulin injecting device using cartridges of insulin. Back of disposable needles puncture cartridge allowing insulin to flow through needle. NovoPen clicks in 2 units of insulin at a time. NovolinPen can inject up to 36 units at a time.

PDI CASE:
Pre-cut foam within carrying case allows for carrying pre-loaded insulin syringe without accidental dispensing of insulin. Also available in 5 syringe case.

ROBINJECT:
Completely failsafe robot type injection device for visually impaired or blind diabetics. Allows person to mix insulins (NPH and regular) in different amounts daily if desired. Robot exactly draws up correct amount dialed in and sounds audible beep for reassurance. It becomes its own injection device after syringe has been filled. Uses Monoject syringes and Nordisk insulin.

SYNERGIST ERECTION SYSTEM ... call for pricing
Molded anatomically from clear, pressure sensitive silicone. The synergist uses only gentle vacuum pressure to create a natural erection without constricting blood flow.

VIAL CENTER AID:
Fits over insulin vial top to center needle (used with Inject-Aid or alone).

ORDER FORM

TO SPEED YOUR ORDER, PLEASE PRINT CAREFULLY.

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Houston, Texas 77054

ORDER DATE_____

Name _____

Address _____

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Daytime phone number ( ) _____

☐ I've enclosed a check or money order in the amount of $_____
payable to Diabetes Supplies.

☐ C.O.D. 2.20 extra

Charge to: ☐ Mastercard ☐ VISA ☐ American Express ☐ Discover Card

Account # (All digits) |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Expiration Date |_|_| - |_|_| _____

Signature required if using credit card

☐ I need an insurance form.

ll mail and phone orders are shipped F.O.B. Houston, Texas within 8-24 ours upon receipt of your order. We ship UPS whenever possible; you ould receive your order according to the following schedule.

Within 200 Miles	Next Working Day
200-500 Miles	2ND Working Day
500-1000 Miles	3RD Working Day
1000-1700 Miles	4TH Working Day
Over 1700 Miles	5-6 Working Days

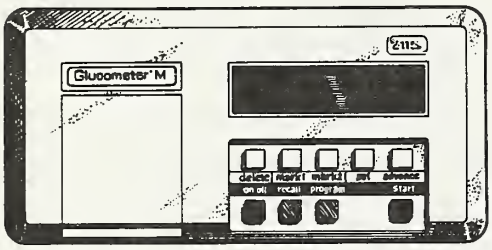
laska, Hawaii, Caribbean add 2-4 extra days. UPS working days include onday-Friday. Any order can be shipped next day air or second day r. Call for extra charges.

Item No.	Qty.	Item Price	Description of Item	Total Charge

When it comes to blood glucose monitoring...

See the whole picture for better control

Only Glucometer® M Blood Glucose Meter enables your doctor to actually see blood glucose patterns over time to quickly spot problems. The two of you can then discuss your condition instead of wading through log books. You'll feel better both physically and emotionally, and you'll never have to do manual tabulations again. You'll also love the automated ease and accuracy of this meter.



$249.00

Ames Division MILES

Now available at DIABETES SUPPLIES™ dr diabetes resource centers

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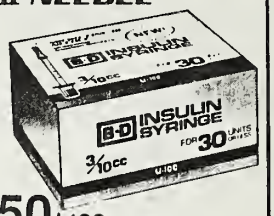
INSULIN USERS

B-D Syringes with the

MICRO-FINE™ III NEEDLE

for UNEQUALLED INJECTION COMFORT. Icc, ½cc and INTRODUCING THE **NEW 3/10cc Insulin Syringe.**

For people taking 30 units or less



100 Syringes only $18.50/100

DIABETES SUPPLIES™ dr diabetes resource centers

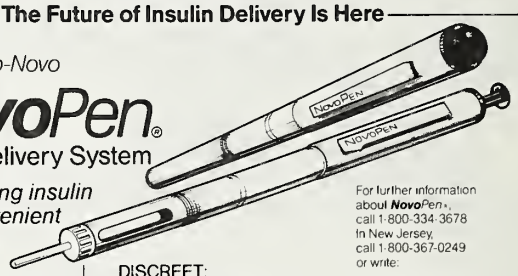
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CONVENIENT:
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- The sleek, fountain-pen design lets you carry... and use it...just about anywhere.

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For further information about ***NovoPen***®, call 1-800-334-3678 In New Jersey, call 1-800-367-0249 or write:

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NovoPen*. bringing new convenience and simplicity to insulin injection.*

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NORDISK HUMAN INSULIN

(semi-synthetic)

- Mixable
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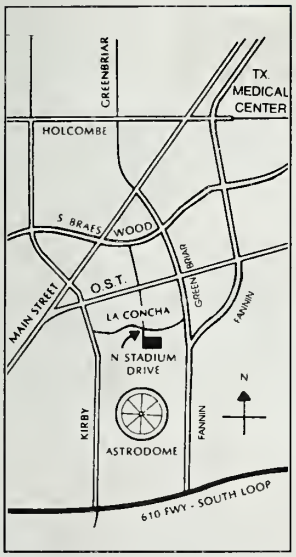


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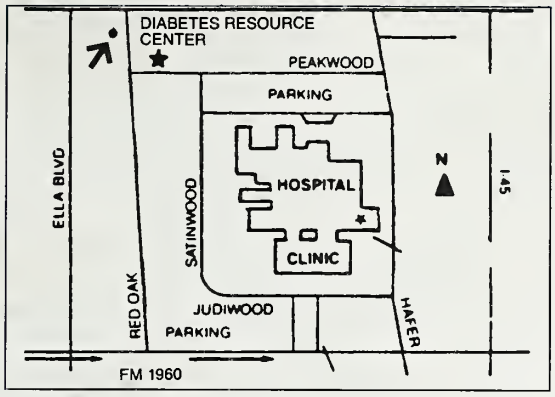
When in Houston, Miami or Seattle, visit our

DIABETES RESOURCE CENTERS

Houston-2 Locations



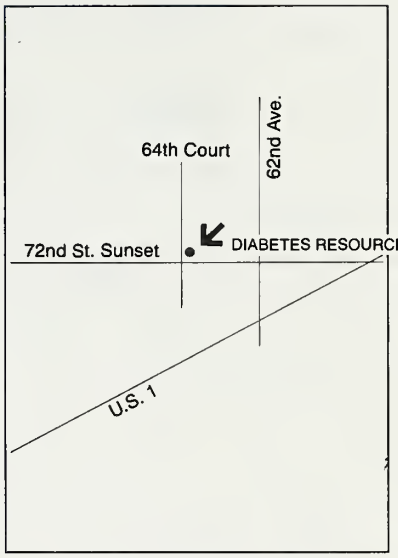
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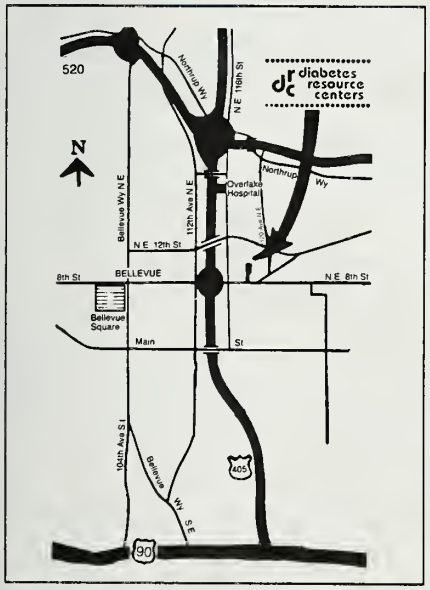
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PLEASE NOTE

We advertise monthly in the ***Diabetes Forecast*** magazine, published by the American Diabetes Association. Our monthly specials on meters, strips, accessories, etc. are terrific. So watch for the ads, mention the ad number and you will save money!

If you know someone who would like to be on our mailing list include his/her name on your next order or call 713-797-1726.

We look forward to serving your diabetic community.

CALL (713) 797-1726 or (713) CONTROL FOR ANY INQUIRIES OR PLACING HOUSTON AREA ORDERS.
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PROCEDURE ... for fast service, please follow these easy steps to order by phone.

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1. Include name, address, city, state, zip and phone number.
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3. Give product number, description, quantity and price.
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Please Note:

Manufacturers and suppliers may from time to time adjust the cost to us. Therefore, prices are subject to change without notice. Every attempt has been made to stabilize prices and pass the savings on to you.

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To save sales tax on future orders obtain an open prescription from your physician listing those supplies you must refill on a continuous basis (strips, lancets, alcohol swabs, etc.) Send the original prescription to us and we will keep it on file in our licensed pharmacy. There is no tax on items beginning with I such as IH, II, IC, IP, IS except ID items are taxable. Current tax is 8% on items subject to tax.

America's largest source of diabetes supplies

DIABETES SUPPLIES™

Robinject

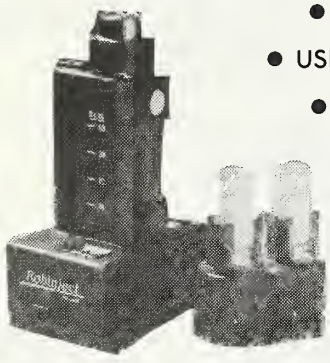
PATENTED

The injection robot

New

THE FIRST AND ONLY DEVICE FOR THE BLIND TO DRAW UP AND INJECT INSULIN

- CAN MIX TWO INSULINS
- ACCURATE DOSING - NO ERRORS POSSIBLE
- CAN CHANGE EITHER DOSE EASILY
- BATTERY POWERED, MOTOR DRIVEN
- USES NORDISK INSULIN
- USES MONOJECT SYRINGE
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AVAILABLE EXCLUSIVELY AT

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TERUMO®
Insulin Syringe

Box of 100
27 gauge x ½"
Ultra Thinwall
for use with
U-100 insulin



- sharpest needle
- ultra thinwall
- enhanced comfort
- sterile safety pack
- no needle disengagement
- integrated cannula
- available in 1cc and ½cc

$12.50/100 STORE NAME

Whether it's Convenience or Accuracy you are looking for . . . We've got a glucose monitor for you.

New



TRACER™
Blood Glucose Micro-Monitor

FOR PEOPLE ON THE GO . . .

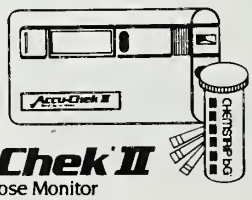
- Smallest monitor available
- Smaller strip - less blood required
- Lowest suggested retail price
- Memory storage capability

BOTH THESE MONITOR'S OFFER YOU:

- **Ease of use**
- **Accuracy**
- **2 year warranty**

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Accu-Chek II
Blood Glucose Monitor

FOR PEOPLE IN THE KNOW . . .

- Used by 80% of all hospitals
- Visual or monitor - read
- Extended reading range
- Forgiving of human error

NEW PRODUCT AND PRICE UPDATE

DIABETES SUPPLIES™ SINCE 1979

Because of increased technology, new products in diabetes management are being introduced to the public constantly, and the prices of these and competing products change. Here is a six month update to our current 1988 catalog. The items that have a (*) are new products. If a favorite product of yours is not listed below, the item is priced in the current catalog.

BLOOD GLUCOSE MONITORING

— TEST STRIPS —

BG0502	CHEMSTRIP bG (50) for ACCU-CHEK II	26.50/vl
	Three or more vials	24.75/vl
BG0503	CHEMSTRIP bG (50) for ACCU-CHEK bG meter	26.50/vl
	Three or more vials	24.75/vl
BG0508	CHEMSTRIP bG (100) for ACCU-CHEK II	46.95/vl
	Three or more vials	44.95/vl
BG0535	TRACER STRIPS (50)	24.95/vl
	Three or more vials	23.50/vl
BG0031	GLUCOSCAN (50)	26.75/pk
BG0073	GLUCOSCAN (100)	48.75/pk
	Three or more pkg	46.50/pk
BG2627	GLUCOSTIX (50)	26.95/vl
BG2628	GLUCOSTIX (100) for GLUCOMETER II	48.95/vl
	Three or more vials	46.95/vl
*BG0022	EXACTECH STRIPS (50)	26.95/pk
	Three or more pkg	25.95/pk

METERS

*BG0782	MATCHMAKER (Boehringer Mannheim)	29.95/ea
*BG0020	EXACTECH KIT (Baxter)	195.00/ea
	See ad reverse side. Kit includes meter, case, Palco lancing device, lancets.	
*BG0781	TRACER CARE KIT (Boehringer Mannheim)	150.00/ea
	*TRACER METER, 25 TRACER bG strips, Soft Touch Lancing Device, Lancets, Control Sol. (Hi & Lo), Carrying case, audio tape	

CONTROLS

*BG8599	EXACTECH CONTROL (1 hi, 1 low)	8.95/bx

DATA MANAGEMENT SYSTEMS

*BG0111	ELB ELECTRONIC LOG BOOK (Boehringer Mannheim)	149.00
*BG0112	MERLIN DIABETES MANAGEMENT SYSTEM (Boehringer Mannheim)	300.00

URINE MONITORING

*UM2820	KETOSTIX (50)	4.79/vl
*UM0515	CHEMSTRIP K (100)	9.25/vl
*UM0513	CHEMSTRIP UGK	11.50/vl

SYRINGES/NEEDLES

NOTE: All B-D syringes (1cc, ½ cc and 3/10 cc) are now Micro-fine IV. They're sharper and smoother than Miro-fine III!

INJECTION AIDS

*DA5240	NOVOLIN PEN	39.95/ea

HUMAN INSULIN

SQUIBB-NOVO

*IH3316	NOVOLIN N PENFILL (5 cartridges/bx)	12.42/bx

NOROISK

*IH0333	MIXTARD HUMAN (70/30)	11.90/vl

REACTION AIDS

They're back!!

*IR1472	OEXTROSOL TABS (Natural, Lemon, Orange)	1.35/pk
	Buy a case (24) and save	30.00/cs
DA4447	SLEEP SENTRY	240.00/ea

MEDI-JECTOR ACCESSORIES

II0012	MEDI-JECTOR CLEANING SOLUTION	1.95/vl
II0006	SALINE SOLUTION (all jet injectors)	1.95/vl

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NOTE: The new pamphlets and cookbooks will be explained in detail when the new 1989 catalog is published.

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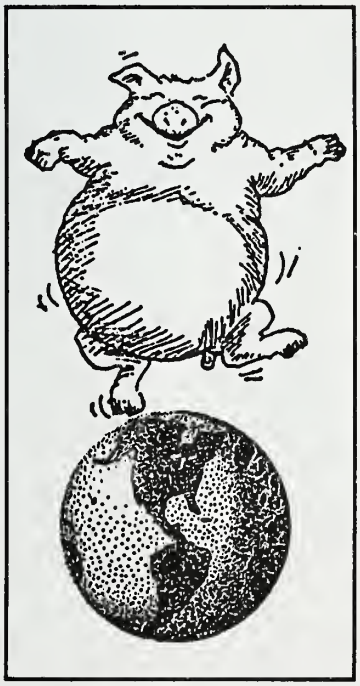
SugarFree Center

HEALTH-O-GRAM

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TRAVEL

It Makes a World of Difference in Your Diabetes



As you can see the *H-O-G* is on top of the world because the theme for this issue of the *Health-O-Gram* is TRAVEL.

If you've ever read *The Peripatetic Diabetic*, you know that travel has always been our greatest joy and passion, but now we've found that it also can be an effective diabetes therapy. We made this Momentous Discovery while writing a revised edition of our *Diabetic's Total Health Book*, which will be published in the fall. Read all about our discovery on p. 2.

In our travels we've found a lot more more exciting Gourmet Health Foods and sweet treats that will pleasure your palate without bollixing-up your diabetes. Watch for the word new next to the description.

When we traveled to Wichita to speak at an ADA seminar, we were privileged to hear a lecture by Richard Guthrie, M.D. His wise words on diabetes control confirmed what we've always believed and gave us the courage to stand up on our little cloven hooves and say some things that may startle you, may upset you, and yet may make it possible for you to travel through life free from the dread complications of diabetes. (p. 16)

. We'll include secret travel tips on some of our favorite places, but we're not the only travelers whose tales are told here. Ms. Jet Goes to Washington (p.20) and David Lovejoy takes you on a gleeful globe-trot with his two favorite travel companions: his wife and his insulin pump. (p. 9)

Our mail-order service has been getting around, too. It's moved to new quarters in Chatsworth. This gives us more space to stock more products and to develop our **Mail-Order Pharmacy**. Now you can easily order your syringes and prescription drugs and they will travel right to your door. (Details and order blank on p. 25)

We traveled to England to iron out the details about importing **Dextrosols**, everybody's favorite blood sugar raising tablets. They'll be here in May or June. We swear it. We know we've promised you the return of **Dextrosols** in the *H-O-G* before, but this time it's for real. To prove it, we're having a contest to guess the arrival date. (See pp. 12-13.)

So let us be your tour guides. We hope you'll find that, as Emily Dickinson said, "there is no frigate like a *H-O-G* to take you lands away."

June Biermann Barbara Toohey

P.S. If you're a first-time reader of the *Health-O-Gram*, make a quick trip to p. 24 to find out who we are, what the SugarFree Center is, and what this *H-O-G* nonsense is all about.

LOCATIONS OF SUGARFREE CENTERS

San Fernando Valley
(Headquarters)
13715 Burbank Blvd.
Van Nuys, CA 91401
(818) 9941093

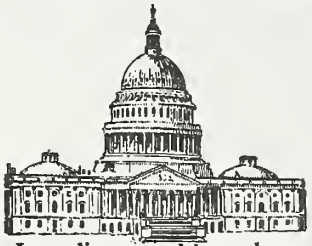
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Suite A11
San Bernardino, CA 92408
(714) 884-6369

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(Corner Anza & Del Amo)
Torrance, CA 90503
(213) 214-0553

TOLL-FREE ORDER NUMBERS: Nationwide: 1800-972-2323; California: 1-800-336-1222

TRAVEL AS DIABETES THERAPY







June discovered how therapeutic travel can be when she had another health problem—chronic headaches. She had to endure these excruciating skull-pounders about 80% of the time. But there was a strange phenomenon: anytime she went on a vacation the headaches disappeared instantly. It was truly remarkable. On plane flights hardly had the wheels left the tarmac when poof! a headache that had been clamped to her skull for a week let go and floated away and stayed away for the extent of the trip. Upon her return home, it reappeared.

After five years a headache specialist finally discovered the True Cause of June's headaches: TMJ (Temporomandibular Joint) syndrome. This is a malfunction of the jaw hinge joint. When that joint is out of alignment it sets off pain that can wind up in any part of the body—leg, back, *head*. Why would the TMJ pain be any different on a vacation than at home? When she was at home and at work with all the built-in stresses and problems of those two locations, she unconsciously clenched her teeth (day and night) and that set off the pain. On a vacation away from those stresses, she didn't clench and didn't get the headaches.

They always say that you can't leave your troubles behind when you go on a trip. They are wrong! We find you *can* leave them behind and the farther you are away from them the better. You realize you can't do anything about your problems from this distance, so you finally put them out of your mind and decide just to relax and enjoy yourself. It's the best stress-reduction therapy there is.

Now you probably don't have TMJ syndrome, but you *do* have diabetes and literally getting away from your daily stresses can make your diabetes easier to control. Sometimes almost too easy. June has found that on a vacation when she's relaxed, her blood sugars start dropping hazardously and she has to cut back on her insulin or eat more. This happens to her as quickly as getting rid of the headaches in the past. Maybe even more quickly. Recently when she was planning to take off on a trip to San Francisco in the afternoon, her blood sugar began plummeting in the morning. Chomping on a Dextrosol, she protested, "I'm so happy I can't keep my blood sugar up."

Combining the stress-reducing and happy-making qualities of travel with all the exercise you invariably get on a vacation, your blood sugars may stay in such a low range it almost seems that you're taking a vacation from diabetes.

Your Diabetes Passport

Of course you can't take a vacation from diabetes. It's always there with you. And since it is, you might as well make it a good travel companion.

The first thing to remember is to be totally accepting of your diabetes. Never hide it or act embarrassed about it. Since we're always up-front about June's diabetes, it has given us some pleasant adventures and allowed us to get acquainted with some wonderful people. In the *Peripatetic Diabetic* we reported how, when we were in Sri Lanka and visited a Buddhist temple in Mount Lavinia, a diabetic priest became so excited when he learned that June was diabetic that he raced back to his quarters to get his oral hypoglycemic to show her. He then gave us a personal tour of the temple.

One night in San Francisco we were dining in Trader Vic's. Since the room was dark, June didn't feel like trying to find the restroom to take her shot, so she just asked Barbara to discretly give it to her in her arm. Later when the Maitre D' came by to take the order, he said he had noticed what we were doing. He explained that he, too, was a diabetic and then spent a lot of time carefully going over the menu with us explaining which dishes to avoid because they had honey or sugar.

One of our favorite diabetic adventures took place in New York. Years ago when Barbara read Dan Jenkins' book, *Semi-Tough*, she became intrigued by the repeated mention of bacon cheeseburgers at P.J. Clarke's on Third Avenue at 55th street. Later study of guidebooks revealed that it's supposed to be a hangout of the New York publishing set. Since those are the kind of people Barbara likes to share atmosphere with, she insists on going there the first night of every trip to New York. (Yes, yes we know that bacon cheeseburgers are hardly the kind of low fat, high fiber fare that we advocate, but once a year doesn't hurt, Remember the motto: Moderation in all things, including moderation!)

On a recent trip to New York we checked into the hotel around dinner time. June wanted to take her insulin there before going to the restaurant, At Clarke's the restroom facilities are not exactly palatial and brilliantly lit. Since it was Friday, we knew there might be trouble getting in , so Barbara called and, engaged in the following conversation with the Matitre D'.

"Would you have a table for two in 15 minutes?"

"I think we could fit you in about then."

"Are you sure? You see I have to know because I'm a diabetic and I'm taking my insulin right now and I have to be

TrendsMeter Order Information

#3027 TrendsMeter___$180.00

3070 Trendsmeter System Kit ___$269.95

Kit includes Trendsmeter, 1 battery, 100 Slimpak Strips (2 pks of 50), control solution, 2 confidence strips, Auto-lancet, 200 lancets, Idealskin carrying case, manual, instruction cassette.

#2026 Trendstrips (25)___$13.50

#2027 Trendstrips (50)___$25.00

#2042 Trendstrips (50 Slimpak)___$26.00

#3030 Betascan audio meter ___$610.00

(For visually impaired)

For order information on other Orange Medical products see Price List pp.26 -29. Order by phone or on blue inserted order form.

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*Data on file at Miles Laboratories, Inc.

Ames Division MILES

Shown actual size



Glucolet comes conveniently packaged with everything you need to get started.

Travel As Diabetes Therapy

(Ccntinued from p.2)

certain I can eat without too much delay." (Barbara often claims to be the diabetic. It takes any embarrassment and *boredom* of having to say it off June and, since she isn't diabetic, she feels free to blurt it out. Other friends and family members of diabetics should try it.)

"Isn't that a coincidence, " said the voice on the line. "I just took my insulin, too. And, yes, you can be *sure* you'll get a table right away."

We weren't there two minutes before the genial Maitre D' whose name we later learned was James (for privacy we'll leave off the last name), escorted us to a table and made certain that we got attentive, friendly, and *fast* service. On our return to California we sent him a *Health-O-Gram* to encourage him to take good care of his diabetes. Now everytime we go to New York, we feel we have a home and a friend at Clarke's all because of diabetes.

We've also met a lot of nice and interesting people on planes. If June is going to take her injection at her seat—or Barbara is going to give it to her—we always explain to our seat mates what we're going to do and invite them to look away if it might be disturbing. This has been a great ice-breaker. Almost every person we've encountered has a diabetic family member or friend and is interested in discussing the subject. One seat mate turned out to be a nurse, who criticized Barbara's injection technique because she didn't aspirate. This led to a lively exchange about whether or not aspiration is necessary. (We—and most diabetes nurse educators—contend that it isn't.)

These are just a few examples of the doors that the key of diabetes can open for you in travel. Don't keep it hidden in your purse or pocket and you, too, can unlock many new and pleasant experiences.

Travel Wonder Drug Cautionary Note

Some people are allergic to even the most wonderful of wonder drugs. There are those who have an awful reaction to penicillin. There are those who get stomach distress from aspirin. And there are a few unfortunate people who are allergic to travel. They just don't like it. Maybe they even hate it. Although we're not the slightest bit allergic to this wonder drug ourselves, we can understand those who are. Travel can be frustrating. Travel can be exhausting. At times travel can wear down your health and upset your diabetes. For those of us for whom travel is as much of a life necessity as work, love, and oxygen, there's no problem with the trade-off. But if you're only traveling because someone else wants you to or because it's "the thing to do," then you should stay home

(Continued on p. 6)

Glucometer & Glucolet Order Information

#3036 Glucometer II Meter___$150.00
#3037 Glucometer II Kit___$179.95
(Kit includes: meter, carrying case, 25 Glucostix test strips, Glucolet, 10 lancets, control solution, Clinilog, Kleenex.)
#3035 Glucometer II with memory Kit___$195.00
(Kit includes items mentioned above.)
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NEW Glucostix now available individually foil-wrapped.
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and cultivate your garden or build a beautiful piece of furniture or do whatever it is you most enjoy. Otherwise you may wake up at 3:00 a.m. in a far-off somewhere, listening to someone trying to start a motorcycle outside your window, your stomach burning with indigestion from the strange food, your feet aching from treading cobblestones, your throat starting to feel the raspy beginnings of a cold, while you wonder what your blood sugar is, but you're too tired to get up and test. When you ask yourself, "how did I get into this?" we don't want you to say that we did it by pushing the travel wonder drug. No, if you're definitely allergic to travel, then leave it on the shelf for others. (We don't want to create a shortage!)

SEA ESCAPES

Since we *are* such travel fanatics, we're often asked where's the best place we've found for a diabetic's vacation. We always contend that since there are diabetics everywhere on the face of the earth, diabetics can travel anywhere. Just go to the place that intrigues you most. We admit, however, that we do have a few favorite places. Ones to which we're happy to return again and again and where we're never disappointed. Several of these happen to be beside the sea.

Maybe there's some truth in the theory that our ancestors emerged from the sea, because there's something about the ocean that eternally tugs us. When June selects a scene upon which to meditate or to use as a setting for guided imagery, it's almost invariably one by the ocean, a *warm* ocean. Tropical climes are the absolute best place for stressed out folks to get the tensions worked out. In fact, it almost seems your very bones are removed as you become afflicted with the delightful condition known as Polynesian Paralysis or Caribbean Catatonia in which you can sit or lie in a hammock for hours doing *absolutely nothing*.

But there are also a lot of hydro-therapy somethings to do. Barbara considers snorkeling the greatest meditation there is. Lying face-down floating in tropical waters watching the schools of fish, some small and colorful as confetti, some like the brightest of autumn leaves, some like neon needles, and there are the larger individual fish that, after a few days, you begin to recognize by type and even personality.

Soft, preferably white sand is a prerequisite for us as is a bay of clear water for unhazardous swimming and snorkeling. Quiet is a must—we love places that forbid radios on the beach. Finally, the food must be good and readily available for the low blood sugar that comes with all that relaxation and exercise. The following meet or exceed our requirements:

Bora Bora—Hotel Bora Bora
Hawaiian Islands: Kauai—Kiahuna Plantation
Maui—Napili Kai Beach Club Hawaii—Kona Village Resort
Virgin Islands—Caneel Bay

Ask your travel agent for brochures. Then decide which paradise is for you based on location, cost, and mystic vibes.

Nordisk Insulin Order Information

#0097 Nordisk Human NPH__$10.75
#0098 Nordisk Human Regular—$10.75
#0003 Nordisk Purified Pork Mixtard___$10.75
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- Are easy for patients to use

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Mr. Pancreas Goes Skiing...

or golfing, or running, or walking.



During exercise, patients with diabetes often need less insulin; they must interrupt their exercise to eat more carbohydrates. How do people who wear an insulin pump enjoy sports?

Let's ask our pump wearers. . .

"When skiing, I don't have to stop at a certain time to eat—I can eat when everyone else does. I can also turn my pump off to prevent low blood sugars when exercising rather than having to eat snacks."
Tom M. Sr. Communications Specialist, Hacienda Heights, CA

"Wearing a pump makes my aerobic classes so much easier. Now when I sweat, I know it's probably from hard work, not low blood sugars."
Linda P. Artist, Dallas, TX

"Before the pump, playing 1 to 1½ hours of racquetball usually meant stopping midway through a match to treat a reaction. The pump makes exercise easier because I can use a Temporary Basal Rate to decrease my insulin delivery. With the pump, I can play an entire match without interruption. It's a lot more fun that way."
Richard F. Personnel Director, Medfield, MA

YOU MAY ASK YOURSELF: HOW CONVENIENT IS AN INSULIN PUMP?

Again, let's ask our pump wearers . . .

"I used to have to plan my meals around my shots; with a pump my meals are much more flexible."
Wilma R. *Retired Nurse, Vista, CA*

"My first delight was in the MiniMed's small size, but I've been equally pleased with its performance. It's a great little pump."
Janet R. *Landscape Consultant, Woodbine, MD*

"I have been a pump patient for the past four years and find that I am a happier, healthier person."
Robin M. *Teacher, Baltimore, MD*

"Using the MiniMed has eliminated embarrassing moments taking shots in airport restrooms or behind a tree on the golf course."
Don C. *Company President, Roanoke, VA*

"Your pump is so easy to operate and wear that I find myself forgetting I am even wearing it. The knowledge of your staff is very comforting when calling for any help or advice."
Debra M. *Homemaker, Orangevale, CA*

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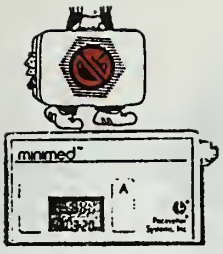
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Intensive Insulin Therapy with this device should be supervised by a diabetes specialist with expertise in this technology.



TRAVELING ON A PUMP

By
David Lovejoy

Do the names of faraway places make you quiver with delight? Do you believe that since you're diabetic going to those places is hopelessly complicated or impossible? If you answered yes to both questions, then you only got one right. I travel comfortably and safely with diabetes, and so can you.

I 've been an insulin-dependent (Type I) diabetic for 35 of my 40 years. During that time I 've seen major changes in the treatment of diabetes. Those changes have allowed me to live a fairly normal life, and that even includes traveling.

My wife and I love to travel. We've been to France, England, Germany, Switzerland, Italy, Japan, Taiwan, Hong Kong, Singapore, Thailand, Mainland China, and other places I can't remember. We started traveling in 1970 when I was taking insulin by injection and testing my urine. Taking long-acting insulin and going through 8 to 16 hour time changes did interesting things to my control— I didn't have any. No matter how carefully my doctor and I prepared for the trip, I could count on insulin reactions and stratospheric blood sugars.

When meters became available, I purchased one to help me keep myself in better control. It's been an indispensable travel aid. I consulted with my doctor, and we came up with a plan of multiple injections for the first few days of a trip in conjunction with a lot of blood testing. The day before leaving I'd switch from long-acting insulin to regular (fast-acting). Instead of two injections a day, I took five. I did this for the first couple of days going and coming from vacations in far-off places to help me adjust to the time zone changes.

I learned that it's important to change to the time zone of the new country as soon as possible even if this means staying awake when you want to sleep and eating at weird times. This helps the body adjust and cuts down on jet lag.

On my first long flight to London I called the airlines and told them I was a diabetic and would like special food. Keep in mind that this was way before special meals were as commonplace as they are today. They told me that they had to talk to my doctor, but not to count on anything special. When we got on the plane, we were met by the chief steward who stuck to me like glue throughout the flight. At lunch everyone had a sandwich, and I was given a steak. As a matter of fact, I was given a steak for every meal on that trip. I learned that there can be too much of a good thing. When I asked why I was getting the special treatment, they told me that my doctor had said that I go paranoid when I have an insulin reaction and might try anything to get off the plane. My doctor got one heck of a thank you letter after that trip.

When I finally bought a pump (I'm now on my third), things got even better. I set up a schedule of testing every two to four hours during the flight. I also kept my basal rate lower than normal. During the first night at our destination I would get up twice and test to see how I was doing.

Now what do you do if you test at 3 a.m. and find that your blood sugar is 42? It's tough to find a deli open at that hour in Hong Kong. Talking to the night clerk is non-productive because he speaks as much English as you do Chinese. If you go prepared, this is no problem. My wife, sweet little mother hen that she is, packs enough food to feed the 5th Army for two weeks. She loads a carry-on case with cheese and crackers, diet cookies, juice, Dextrosols, canned fruit (bring an opener!) and anything else edible. On our first trips I told her that this wasn't necessary. But after a number of times when this saved my behind, I quit complaining and now even suggest other goodies to pack. We carry some of these snacks around when we're out touring, also. Since my normal exercise is walking 12 feet to my car, walking all over the Orient brings my blood sugar down.

With my meter I 've found that cutting back 10% on my bolus's and 40% on basals keeps me normal. Depending on the increase in activity you'll find that modifications will be required in your regimen. This is why lots of blood-sugar testing is important during the first couple of days of a trip.

Now, about the pump itself. In the United States most diabetics know about the pump and so do a lot of nondiabetics. This isn't the case in many foreign countries. On a recent trip to Germany I was stopped as I was getting ready to go through the metal detector and told to remove "that thing" on my belt. This was asked of me by two very young and eager German marines carrying uzi machine guns. I, in my infinite wisdom, said, "Nein." Before I could elaborate, I had one machine gun in the right side of my rib cage and one in the middle of my back. Once I explained to the immigration inspector that the device was an insulin pump and showed it to him, everything was OK. I now carry a little card that states that I'm a diabetic and tells what the pump is in the language of the country I'm visiting. I also carry a doctor's statement in my passport.

Supplies are another consideration. When you're home you don't think about all the things you use with your pump. For instance, if you have a pump with rechargeable batteries, you just plug the unit into the wall. In the Orient, where not only is the current different, but also the outlets, this approach won't work. You must carry a set of converters and plug connectors with you. (Available at luggage stores.)

I always pack four times as many supplies as I will ever need. Why? Because what happens if I'm clumsy and break the only two infusion sets I've brought? Most countries have never even seen an insulin pump, let alone carry supplies for them. And no matter how hard you try to adapt a piece of plastic tubing from the hotel's aquarium, it won't work.

Also, remember to take those items that you only need occasionally. On my first trip with the pump I forgot to pack my pliers. Why would I pack pliers? The infusion sets for my pump have a LUER lock connection. This connection has a LUER lock cap on it. Occasionally these caps stick and either pliers or a gorilla are required to remove the cap. On the first night of my trip all of the infusion sets I had brought were stuck. That night I used the old infusion set and on the following morning I invested in a pair of Chinese pliers.

You must also plan for the worst. What if the old reliable pump dies? I always take a bottle of long-acting insulin (NPH) and syringes so I can switch back to the old way of doing things if I have to.

The pump has added a lot of freedom to my life and traveling with it is a joyful and rewarding experience as long as I remember to BE PREPARED!

The HONEST TRUTH

About Meter Accuracy



Honest Abraham and his son, Tad, scrutinizing the latest meter accuracy reports.

When people come to the SugarFree Center for a meter, we always ask which meter their doctor or diabetes educator has recommended. If no one meter has been specified, they usually ask to see what's available. We lead them over to the groaning board of the meter counter. There are at the moment ten meters sitting there. We see a baffled look pass across the person's face. It's almost as if he or she would like to forget the whole thing. After a period of frowning hesitation the person perks up and says, "Which one is the most accurate?" It's awkward for us to tell the truth.

This is because, as is often the case, the truth hurts: **99% of meter accuracy depends on the operator.** So the answer to the question has to be, "It's the one that you can operate most accurately." This sounds a tad insulting, and we hate to say it. But when you stop and consider it, the question posed to us isn't too flattering either. Is the person is saying , "I know you guys sell a lot of inaccurate junk here, so why not be honest and tell me which one really works?" The FDA wouldn't let us stock or sell inaccurate meters even if we were shifty-eyed types who wanted to. Every meter must be approved before being released to the public. They're all tested to a fare-thee-well. Somewhere in each company's operator's manual or in their strip insert you can find the results of the required laboratory tests, usually under a heading like "Performance Characteristics." Here you can read all of the statistical gobbledegook (correlation coefficient, range of coefficient of variations, standard deviation, etc.) that prove the meter to have acceptable accuracy.

The reason we have ten different meters is that we truly want you to have the meter that you *can* operate most accurately. We'd love to be able to offer just one. It would make our lives a lot simpler. But it would be like trying to put everyone into the same size shoes. (Beware of any place that only offers you one or two different meters.)

And here's another brutal truth on the other side of the accuracy coin. When people report "this meter is inaccurate" what most of them should be saying is "I can't operate this meter correctly." One meter company discovered that 90% of the meters returned to them as reading inaccurately were operating perfectly. Pilot error caused the crash.

The fact that meter accuracy is so dependent on operator technique is what has lead us to emphasize the necessity of receiving thorough training as part of your meter purchase. Unfortunately, as competition escalates, more and more meter manufacturers are letting anybody and everybody sell their product. (We expect to see meters stacked up beside supermarket check-out stands any day now—or maybe in street-corner newspaper vending machines.) Our lessons take between 30 and 60 minutes and you are required to do a test that comes out accurately before you leave our premises. You can also come back anytime during the first month for repeat instruction if you're having difficulty. Any meter we sell by mail-order has a certificate that can be redeemed for a lesson at any SugarFree Center or, if there's no center near where you live, by any Certified Diabetes Educator in your area.

We feel diabetics should worry more about adequacy of their training than accuracy of their meter. Those who hand you a meter in a box and tell you to learn to use it from the manual or a casette are cheating you—even at a discount price.

To give the manufacturers their due, they are making great efforts in their new models to eliminate operator-induced variations in results. But operator accuracy problems remain. One day Carla, our diabetic diabetes teaching nurse, was trying to take her blood sugar. She was using one of the newest and supposedly simplest of the meters, a meter she'd used dozens of times and taught dozens of others to use. It took her seven tries (and seven strips!) to get this new, easy machine to read. It turns out her blood sugar was 42!

June believes that aside from tests taken when your blood sugar is too low for you to function well, most meter users

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YES I would like information concerning your Health Plans.
I would like information concerning your Life Plans.

Name _____ Age _____
Street Address _____
City _____ County _____
State _____ Zip _____ Phone _____
Our representative will be happy to review our Life and Health Plans with you.

ExacTech™

Amazingly Enough, This Blood Glucose Meter's Greatest Breakthrough Isn't Size.



It's Accuracy.

Presenting the ExacTech™ Blood Glucose Meter.

It's accurate because it's less dependent on user technique.

Technique-dependent steps like wiping, blotting, timing and cleaning have been eliminated. In fact, because this meter is so easy to use, you will be more inclined to test yourself regularly.

Simply insert a test strip into the meter, put a small drop of blood on the target area and press the button. Results appear on the display in just **30 seconds**. It's all due to our exclusive system. One part is the ExacTech Meter, which determines blood glucose levels through a unique electronic measuring method.

The other is the ExacTech Test Strip, which has a small, hydrophilic target area that attracts blood..



At last, there's been a breakthrough in meter technology.

From Baxter HealthCare Corporation.

We're committed to helping people with diabetes lead better lives.

THE HONEST TRUTH (continued)

make their greatest mistakes by not getting a large enough drop of blood and/or not applying it correctly to the pad or membrane. This is the kind of thing that you can only learn in a lesson with an experienced instructor. Carla has even created a special handout called "Tips To Stick To" for people who find it difficult to get enough blood. (Free on request with any meter purchase.) Even with a lesson, though, getting enough blood and applying it correctly are only achieved with careful practice.

Speaking of practice, people who test only two or three times a week have a hard time getting consistency of technique. June figures that, even with all of her experience, every time she begins using a new meter it takes her a month to become really proficient---and she takes at least six blood sugars a day! June also admits that she botches a test for one reason or another every few days. That, of course, is not the meter's fault and she can't blame it for the inaccuracy of the test—although she sometimes tries to! And that's the truth, the whole truth and nothing but the truth, so help us Abraham.

✍ LET US HEAR FROM YOU ✉

If you have suggestions as to how we can improve our service to you, please write to June and Barbara, P.O. Box 114, Van Nuys, CA 91408. Mark it "Personal " so it will go straight to us. Health professionals, please write or call for FREE *H-O-G*s for your patients. We're happy to send as many as you need.

ExacTech Order Information

#3701 ExacTech Meter — $205.00

(Includes hard-shell carrying case, AutoLancet, 50 lancets)

#2048 ExacTech Strips (50) — $31.95

(No strips included with meter)

#3072 ExacTech Control Solution — $9.00

OUT OF AFRICA



Pat patting a rhinoceros—we prefer to think of it as a very large H-O-G!

Pat Ockel, the Manager of our Del Mar center, majored in Exotic Animal Management and Training in college so it isn't surprising that when she had the chance to go on an African safari she jumped on it like an aardvark on an anthill. Pat was the only diabetic on the tour *and* she was the only person on the tour not to get sick! Later she also went to Mexico with her new husband, Kent. She didn't get sick there either, not even a touch of the classic tourist malady. Take that you diabetics who are afraid to travel because of your "fragile health."

Dextrosol ENERGY

At Long Last

All of you Dextrosol fans waiting for the return of your favorite blood-sugar raiser have been very patient with us. Finally your patience is being rewarded. Dextrosols will arrive in May or June. (If you're reading this after June, 1988, they're already here. HURRAH!)

Those of you who've already used Dextrosols don't need to be told of their wonders, but if they're new to you, you may like a bit of background.

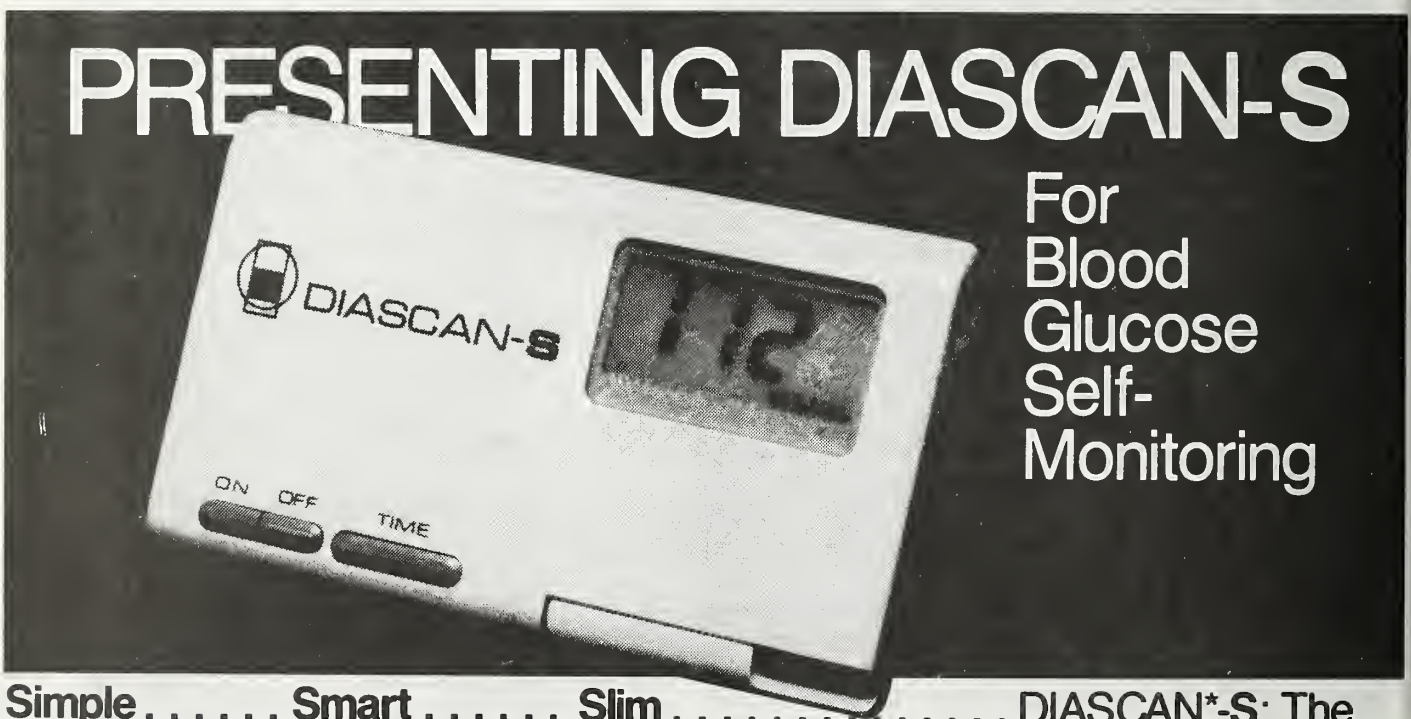
We first heard of Dextrosols from Richard K. Bernstein, M.D., author of *Diabetes, The Glucograf Method of Normalizing Blood Sugar*. (See p. 32.) He insisted that we import Dextrosols from England because he hadn't found anything as fast and effective for raising his patients' blood sugar. As an advocate of tight control, Dr. Bernstein tries to keep his patients' blood sugar in the normal range 90% of the time, which he firmly believes will prevent all diabetes complications. To achieve this, he has his patients inject small amounts of insulin when their blood sugars are above normal. When they're below normal, he has them take the appropriate number of Dextrosols. He has experimented with Dextrosols on himself and others and found that each tablet raises blood sugar in insulin-dependent (Type I) diabetics weighing 120-150 pounds approximately 15 milligrams. (June finds each Dextrosol raises her blood sugar about 17 milligrams.) Dr. Bernstein estimates that they start working to raise your blood sugar in only 2 1/2 minutes.

We started importing Dextrosols from England, and everyone who tried them loved them. We got enthusiastic testimonials like this from Linda Pesso in Van Nuys:

"I would like to tell you how grateful I am to you for introducing Dextrosols. For the first time in the 35 years that I have been an extremely brittle diabetic, for low blood sugar emergencies I don't have to load down my purse with juice, fruits, sugar, and whatever. Just one package of Dextrosols is all I carry and they work beautifully!"

We also heard from Jill Miller of Fairmont, Indiana:

PRESENTING DIASCAN-S



For Blood Glucose Self-Monitoring

Simple . . . . .
- No door
- Touch calibration
- Durable, easy-to-use strips
- No hanging drop required

Smart . . . . .
- Audible control
- Error codes
- Temperature sensor
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- 3x5x½ in. small
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For more information call 1-800 DIASCAN.
In New Jersey call 201 542-7788
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Diascan Order Information

#3039 Diascan-S Meter___$154.50
#3049 Diascan-S System Kit___$190.00
(Kit includes: Meter, 52 strips , control solution, Dialet lancing device, 25 lancets)
#2034 Diascan Strips___$27.50

New Diascan Breakthrough!

Diascan Strips can now be read visually as well as in the meter. This gives you the added confidence of a visual back-up and the added convenience of being able to read your strip without a meter when necessary.
(P.S. The color is very pretty!)

DEXTROSOLS!

"Gals, I felt like you saved my life. My three-year-old got the stomach flu and the only thing she could keep down was the Dextrosols. She usually winds up in the hospital with the flu. Not this time!"

We were all living happily ever after with Dextrosols, when suddenly, WHAMMO! the FDA appeared on our doorstep objecting to the labeling of Dextrosols: the weight wasn't on the front of the package) and that two flavors were colored with unapproved dyes. We had to stop importing them until these two problems were corrected. Now, happily, they are. What's even better, SugarFree Centers are the exclusive importers of Dextrosols in this country.

Each package contains 14 pure glucose tablets. Each tablet = 3 1/2 grams of carbohydrate, 11 1/2 calories. Small and easily chewed. (No rock-hard "horse tablets " these!) Available in three flavors: Lemon, Orange, and Natural. (Many parents prefer Natural for children since it tastes less like candy). Save over 10% with a box of 24.

#0025 Dextrosols (Lemon)___$1.19
#0026 Dextrosols (Orange)___$1.19
#0005 Dextrosols (Natural)___$1.19
#0054 Dextrosols (Lemon-Box of 24)___$25.00
#0055 Dextrosols (Orange-Box of 24)___$25.00
#0033 Dextrosols (Natural- Box of 24)___$25.00



Guess the arrival date of Dextrosols
Win a free box of the flavor of your choice.

Send your guess to the SugarFree Center Van Nuys. If two or more people guess the same day, the earliest postmark wins.

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Call Doug Ziegeler, (818) 994-1093, to find out how you can make Dextrosols available to your clients.



PRECI-JET 50 gives you a freer, more flexible lifestyle without the discomfort and inconvenience of needles.

PRECI-JET 50 "sprays" insulin through the skin for a new level of comfort, convenience and control.

If you or a loved one takes insulin, you need to find out more about PRECI-JET 50. Call Home Diagnostics, Inc. at 1-800-342-7226 (in NJ call 201-542-7788).

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Preci-Jet 50 Purchasing Information

#1064 Preci-Jet 50___$689.00
#1065 Preci-Jet Adaptors (6-pack) __$16.95
#1081 Preci-Jet Case (Blue Leather)___$25.99

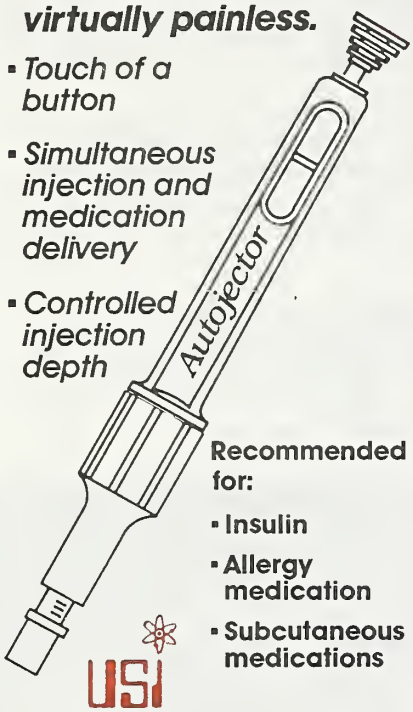
You'll notice that we say "Purchasing Information" not "Order Information." This is because jet injectors cannot (and should not!) be mail-ordered. They need a thorough lesson (generally with follow-ups) by an expert. We have the experts. The SugarFree Centers have taught more people jet injection than any other organization in the country.

Many insurance companies now cover jet injectors. We'll be happy to prepare a Prior Approval Invoice for you to submit to your insurance company so you can be certain they will pay.

Needle Nervous?

With NEW Autojector your injections are virtually painless.

- *Touch of a button*
- *Simultaneous injection and medication delivery*
- *Controlled injection depth*



Recommended for:

- **Insulin**
- **Allergy medication**
- **Subcutaneous medications**

USI
Ulster Scientific, Inc

Autojector Order Information

The Autojector is the only one of the automatic injecting devices that both shoots the needle in *and* injects the insulin.

#1071 Autojector__$39.95
(Includes plastic carrying case)

More From Ulster Scientific

Autolet II

The original finger-sticking device and still a favorite with clinics and hospitals because of the disposable platforms and the capacity to use Unilets (those lancets with a long tail that you can push out and throw away without risking getting stuck and becoming infected by someone else's blood.) Latest model has the added safety of automatic platform release. Now there are 3 platforms with 3 depths of puncture:white=lightest;yellow=medium; orange= deepest. Includes leatherette case with 10 Unilets.

#2009 Autolet II___$24.00
#2016 Autolet Platforms (10) White___$1.00
#2013 Autolet Platforms (10) Yellow___$1.00
#2014 Autolet Platforms (10) Orange__$ 1.00
#2017 Autolet Platforms (200) Yellow__$7.90
#2018 Autolet Platforms (200) Orange_#7.90
#2032 Unilet Lancets (200___$11.00

Unilets can also be used in the Glucolet (see p. 4)

Medical School Now and Then

Those of you who read in the last *H--O-G* about our former dietitian, Ron Brown, who started medical school last fall must be wondering how he's doing. The answer is fine! He's smack dab in the center of the class and delighted to be there since all of his fellow students are of such high caliber. He also reports that very few, if any, of the students in his class are in it for anticipated earnings. They're all dedicated people with higher goals than a beach house and a Mercedes and a Rolex.

After the article about Ron appeared, we received a letter from George L. Chappell, M.D., a psychiatrist practicing in nearby (to us!) Ventura. He tells us how it was when he was trying to start his medical career. Things are truly getting better and better!

Dear June and Barbara:

Your latest Health-O-Gram evoked many memories in my mind because of the article you wrote about Ron's acceptance to medical school. I have been a diabetic for over 35 years and since the age of 4 I have wanted to be a physician. So, unlike Ron, my interest in medicine developed at an early age.

I remember the difficult years of late high school and college when I questioned whether the effort of a medical education would be worth the outcome since there was a high likelihood I would be severely disabled or dead soon after completion of my studies . (At least this was the prognosis for a diabetic in those years.)

I decided to apply to medical school anyway and made applications to over 20 schools. I was very frustrated because my grades were higher than most medical students, and I had worked throughout college and also volunteered in many community activities, showing that I could handle a heavy workload and was committed to community activities. However, school after school said that they felt that the diabetes was too much of a handicap to allow them to accept me. I distinctly remember one admissions officer at a major medical school who told me,"Well , George, your qualifications are certainly way above average, but you're not going to live long enough for society to regain the investment that it makes in your education, so we won't be able to accept you."

Despite all these negative responses, I pestered the admissions officer at UCLA to no end, pulling every string that I could get my hand on, until finally he caved in and admitted me to medical school!

As with all of your "You Can Do It" articles, medical school and residency programs can be successfully undertaken by diabetics. I went to school prior to the days of home glucose monitoring, so I had occasional periods during those 8 years of poor control.

However, by being careful and following the rules as much as possible, I did not have any physical setbacks. Now that home glucose monitoring, the pump and many other advances in home care have come along, I think any motivated diabetic can successfully undertake a medical education. The end result is well worth it, as the emotional and professional rewards are great. Also, having experienced medical care from the patient's point of view as well as the physician's, I have a degree of empathy and personal experience that physically healthy physicians often lack. My patients, even when they do not know I am diabetic, frequently comment on the concern and empathy that they see in my work.

So, I would like to offer congratulations and encouragement to Ron for having successfully made it to medical school. Please remind him that when he gets frustrated with those long hours over the books or on the wards of the hospital, the end does come eventually and is more than worth the effort.

Sincerely yours,
George L. Chappell, M.D.



Up With Blood Sugar

While we rejoice over the arrival of Dextrosols (see pp. 12-13), we have to remember that if you don't take your Dextrsols in time or for some other reason a super-low blood sugar sneaks up and whaps you , you may be too woozy to chew and need to use one of the jels. But remember, these should only be used when you're still conscious and able to swallow, so warn your significant and responsibile others never to put anything in your mouth when you're unconscious. That's when it's Glucagon time. You should be sure to have it on hand at home and at work and anywhere else where you spend a lot of time and could conceivably have an insulin reaction. (See p. 25 for information on how to order Glucagon from our new SugarFree Mail Order Pharmacy.) You should also have those significant and responsible others trained in how to inject Glucagon.

Insulin Reaction Jels

#1006 Glutose___$2.98

Glutose is 32 grams of glucose in a jel base. Usual dose is 1/3 bottle repeated if necessary 10 minutes later. Raises blood sugar around 31 mg. in 20 minutes.

#1003 Insta-Glucose___$2.75

Insta-Glucose is a pocket-size one dose tube of of fast-acting liquid glucose.. Easy-opening twist- off cap.

#1078 Monoject Insulin Reaction Gel (4)___$3.65

Monoject Insulin Reaction Gel (formerly called Monojel) is 25 grams of glucose packed in individual foil-wrapped packets. Some runners carry it in their socks!

What to Do Until the Dextrosols Come

Until the Dextrosols arrive, we will still supply you with Dextro Energens. These glucose tablets, according to Dr. Bernstein, raise your blood sugar approximately 20 mg/dl. Tablets scored so they can be broken in half.

#0130 Dextro-Energen (chocolate)__ $1.25 #0132 Dextro-Energen (lemon)__ $1.25
0131 Dextro-Energen (mint)___$1.25 #0133 Dextro-Energen (natural)__$1.25

Another Good Reason to Get onto a Jet

Richard K Bernstein, M.D besides discovering Dextrosols has come up with another advantage for jet injection. We've already discussed in previous H-O-Gs the advantage of jets for people with needle phobia or who have an insulin absorption problem or both of the above. Now Dr. Bernstein reports in the newsletter he sends to his patients that jet injection is " . . . especially useful to people who are overweight because all users require less insulin when injecting with this device. Insulin, as you know is a potent fat-building hormone and if we can keep the doses down there is some advantage."

Medi-Jector EZ and Medi-Jector II Information

As is the case with all jet Injectors, Medi-Jectors cannot be sent by mail, although the supplies for them *can*. The EZ is for people who inject 50 units or less at a time and the II for people who take more than 50.

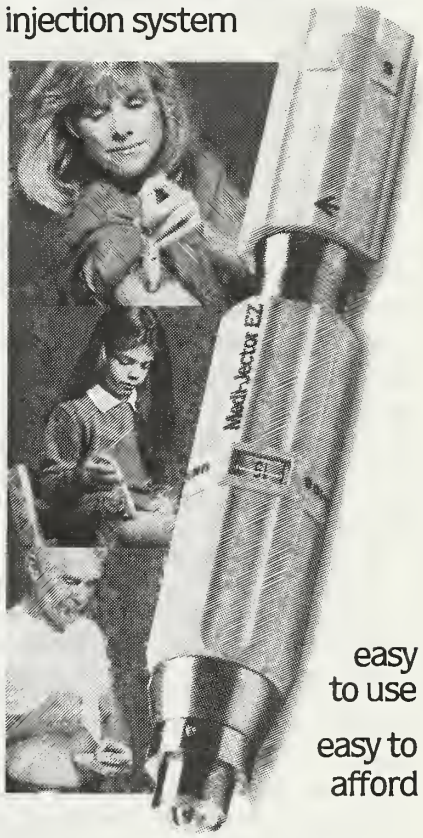
Medi-Jector EZ Information

#1030 Medi-Jector EZ__$695.00
#1031 Adaptors (3-pack)___$8.95
#1036 Black Nozzle Wrench $1.30
#1032 Instruction Video -VHS__ $19.95
#1037 Nozzle Cap__55¢
#1027 "O" Ring__15¢

Medi-Jector II Information

#1010 Medi-Jector II___$825.00
#1020 Adaptor___$3.00
#1021 Adaptors (12)___$34.20
#1066 Cleaning Solution___$1.75
#1005 Cleaning Tool___50¢
#1019 Instruction Video-Beta _$29.95
#1024 Instruction Video-VHS__$29.95
#1038 Nozzle Cap___50¢
#1026 "O" Ring___18¢
#1049 Saline Solution___$1.50
#1051 Spacer (Hole)___50¢
#1050 Spacer (Solid)___50¢
#1029 Stopper___55¢
#1022 Vial Holder___$5.00
(Lilly, Squibb/Novo)
#1023 Vial Holder *(Nordisk)*___$7.50

NEW
Medi-Jector® *EZ*
Advanced needle-free insulin injection system



easy to use

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Medi-Jector's new lightweight slim-line design, digital dosage display, and simple operating procedure make it easier than ever to eliminate the pain and discomfort of taking insulin with a needle.
Isn't it time you discovered for yourself what 15,000 Medi-Jector users already know about needle-free comfort and convenience?

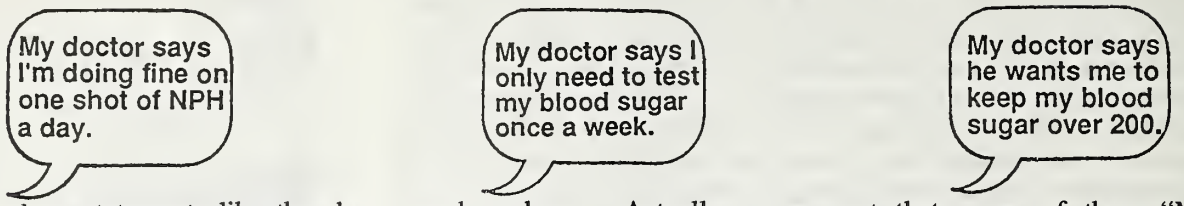
Isn't it time you tried Medi-Jector?

For more information and the name of the nearest distributor, please call **1-800-328-3074** (In Minnesota call, collect, **1-612-566-1202**).

Life can be a little easier with Medi-Jector.®

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A Trip to Never-Never Land



When we hear statements like the above—and we hear them often—we feel we've suddenly traveled to a far-off strange place where nobody understands or cares about good diabetes therapy. Since we're not doctors ourselves and the statements always begin with "My doctor says," we've hesitated to screech in disbelief. But after hearing Dr. Richard Guthrie's talk we're ready to speak out.

Actually we suspect that many of these "My doctor sayses" are misinterpretations of what the doctor *really* said or are wishful thinkings of what people wanted their doctors to say, because it's not easy to take more shots and tests and achieve better control. At any rate, here we go (as usual!) opening a few cans of worms: one for Type I's, one for Type II's and one for Everydiabetic.

Type I's: Good control is impossible on one shot of NPH a day.

This is because, as Dr. Guthrie explained it, while the life of NPH may be 24 hours, its *therapeutic* life (the period during which it controls blood sugar) is only about 13 hours. With one shot of NPH, therefore, it would be possible for you to have eleven hours during which your blood sugar may not be controlled.

We know the representative of an insulin company who used to squirm through lectures by a well-known diabetic diabetologist. The doctor would point sternly at the rep and say, "It's all your company's fault that there have been so many diabetics with complications like blindness and kidney failure and amputation." His company was the one who, years ago, first developed NPH. At that time everyone hailed NPH as a great breakthrough because it meant that rather than taking a shot of regular before each meal, diabetics could take one shot of NPH in the morning and forget about it. Since blood sugar self-monitoring was not possible in those days, the one shot-of-insulin people didn't realize that they were running around with high blood sugar a good part (a bad part!) of the time. The lecturing doctor maintained that many of these people could have avoided the complications they later developed if they had been taking insulin the old-fashioned three shots of regular way .

Not only do more frequent shots give you better control, they give you a more flexible lifestyle. June first got onto multiple injections because of travel. She was on a ski trip to France. She'd take her one shot of NPH in the morning and go out for a day of skiing. When she got back to the hotel in the late afternoon her insulin was peaking and she had to stuff down a bunch of junk to keep from having a reaction. When dinnertime rolled around at 7:30 or 8:00, she could eat hardly anything on the menu without getting terribly high blood sugar.

Back home she asked her doctor if it would be all right to take regular insulin before each meal instead of locking herself into the NPH schedule. He said it would be wonderful and wished all his patients would be willing to take more shots. This change also made it easier for June to travel through time zones more gracefully.

Now there are many effective insulin therapies using two or more shots a day and combinations of Regular and NPH or Regular and Lente or Regular and Ultralente. Your doctor can work out with you the best kind of therapy for you based on how your body works and the kind of life you lead For those of you with needle phobia there are also a lot of wonderful new injection aids that shoot the needle in for you— quickly and painlessly. And there are jet injectors that don't use needles at all. You'll see these described throughout the *H-O-G*. Our nurses and self-care specialists will be happy to help you decide which works best for you.

In his talk Dr. Guthrie gave the dismal statistic that up to 80% of insulin-taking diabetics may still be on one shot of NPH a day. Don't you be one of them!

Type II's: You need to take *frequent* blood sugar tests.

You Type II's sometimes have a tendency to think of yourselves as having "mild" or "borderline" diabetes because you don't have to take insulin. You may have a different *kind* of diabetes, but you're just as diabetic as the next person who's a Type I and you have to take just as good care of yourself as your insulin-taking brethren and sistren. This means taking frequent blood sugar tests.

Besides hearing that once a week blood test canard, we've also heard it said that for Type II's it's only important to take a fasting blood sugar every morning, and if that's in the normal range that indicates that control has been good for the last 24 hours. Dr. Guthrie laid that myth to rest, too. Type II's blood sugars fluctuate during the course of the day just as Type I's do. Unless Type II's take frequent blood sugars (fasting, before and after meals) and provide their doctors with data on their fluctuations, the doctor can't prescribe the correct dosages of oral hypoglycemics and/or make the dietary adjustments necessary for the good control that keeps complications away.

Everydiabetic: Aim for normal blood sugars.

According to Dr. Guthrie, vascular damage can begin when blood sugars are consistently over 150 mg/dl. If your doctor *truly* has told you to keep your blood sugar over 200, you should ask why. He or she may have a good reason (e.g. if you have a heart condition the risk of insulin shock may be greater than the long-range risk of high blood sugars), but you should know the rationale behind the therapy. It is, after all, your body, your life!

The Ups and Downs of Blood Sugar Testing

Have you noticed how the price of meters keeps going down, while the price of strips keeps going up? How could you *not* have noticed?! At any rate, **the Glucochek SC remains the only meter in which you can use half strips.** They do have to be cut *precisely* in half and that's why you have to use EquiMed's Strip Splitter II Kit, which also includes an adapter that fits into the Glucochek SC so half strips can be used in it. The Strip Splitter II normally costs $29.95, but in order to reduce the high cost of testing when you purchase the Strip Splitter II with a Glucochek SC Meter, we will cut the price to $15.00. Besides that, EquiMed is offering a $10.00 rebate on the Strip Splitter so when you take that off, the price of the Strip Splitter plummets to an ultimate price of only $5.00. If you've ever thought of purchasing a Glucochek SC and cutting your testing costs in half, the time is now. Note: the Glucochek SC uses only Chemstrips (either bG or for Accu-Chek II).

#3003 Glucochek SC Meter—$149.99

#3018 Strip Splitter II—$29.95

Note: Strip Splitter II Special Price is $15.00 *only* when purchased with a Glucochek SC Meter. $10.00 additional mail-in factory rebate information comes with Strip Splitter II.

Offer expires 8-1-88

Diabetic Carrying Case



And here's another special for you from EquiMed. This versatile soft black vinyl case with a 3/4 zipper holds your meter and all supplies. I.D. card holder and removeable pouch. Velcro interior fasteners. 9 7/8" x 7.5" x 2 5/16". Previous Price $29.95. **$10.00 off!**

#4001 Diabetic Carrying Case—$19.95

(This special price valid only until 8-1-88.)

Sleep Sentry®

TELEDYNE AVIONICS

Insulin Reaction Warning Aid



Senses presence of perspiration and drop in skin temperature on wrist. DOES NOT DETECT HYPOGLYCEMIA. Sounds an audible alarm.

now available from

SUGAR FREE CENTER INC.

Glucochek™ S.C.

BLOOD GLUCOSE MONITOR



The only monitor that pays for itself.

Because Glucochek™ S.C. is the only monitor clinically proven to read economical half strips which save money and require less sample blood.

• Simple, no button operation. • Calibrates to each test strip, reads "error" if strip is stale • Certificate that pays educator to train you on Glucochek™ S.C. • Easy to clean • 2-year warranty • Large, easy to read display • Meets and exceeds industry accuracy standards • Optional Data Logger records up to 400 blood glucose readings.

EquiMed

1-800-452-7536

(In Kansas, call: 913-541-0800)

Keep Your Insulin Not Too Hot, Not Too Cold, But Just Right With . . .

MEDICOOL

This unique insulin protector keeps 2 bottles of insulin at the temperature to guard its optimum effectiveness. The pre-refrigerated cooler keeps insulin cool even in a 100° oven! The unrefrigerated cooler keeps insulin from freezing even on a ski lift! Handsome durable nylon case. Sturdy pockets for syringes and swabs.



#4027 Medicool—$29.95

SLEEP SENTRY

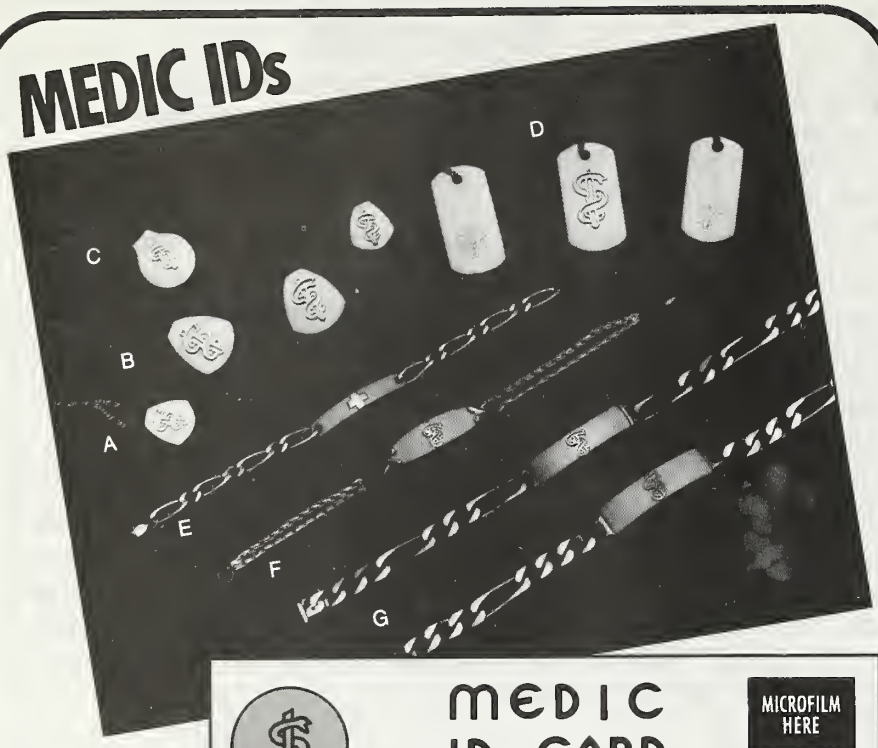
Invented by a diabetic, as many important diabetes items are, the Sleep Sentry is a wristwatch-like device that beeps loud and clear to wake you up at night when you have one of two low blood sugar symptoms: perspiration or a temperature drop.

An insulin-taking diabetic who is subject to low blood sugar (aren't we all!) does a travel companion a real favor by wearing a Sleep Sentry at night so blood sugar won't drop so low that it's paramedic time (possibly in a country that doesn't even have paramedics!). If you're traveling alone, it goes without saying that you should wear a Sleep Sentry at night.

The Sleep Sentry is just as useful for homebodies. Your family will thank you for wearing it. Excellent as a sleeping aid for wakeful parents of young diabetic children!

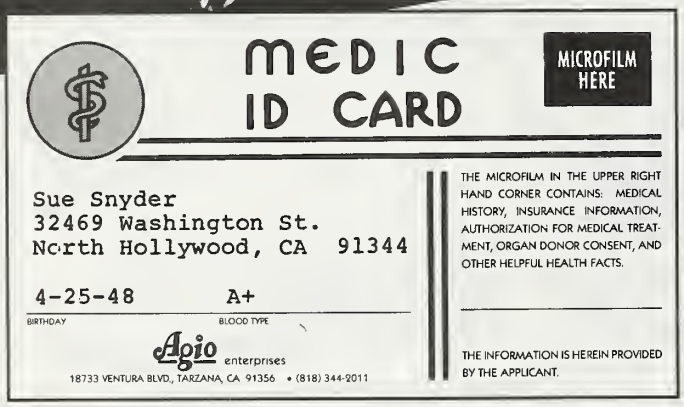
#1011 Sleep Sentry—$275.00

MEDIC IDs



MEDIC ID JEWELRY
It speaks for you when you can't. It gives needed immediate information in life-threatening emergencies.

MEDIC ID CARD
Contains on microfilm all the secondary information the hospital will need to know: medical history, insurance information, authorization for medical treatment, organ donor consent and other helpful facts.



MEDIC ID JEWELRY: Sterling Silver w/Solid Gold Caduceus

A. Small Pendant $47.95
B. Large Pendant $55.95
C. Round Pendant.....$47.95
D. Dog Tag w/Caduceus .$57.95
E. Small 6½" Bracelet ..$49.95
F. Ladies' 7" Bracelet ...$65.00
G. Men's 8" Bracelet ...$85.00

Engraving is included, and you can get up to 3 lines. Don't forget area code with phone numbers. Above items also available in 14K solid gold. Please call for prices. Add $3.50 shipping charges.

MEDIC ID CARD:
$10 each or FREE with purchase of MEDIC ID Jewelry

Agio 18733 VENTURA BLVD. TARZANA, CA 91386 (818) 344-2011

Agio Medic ID Jewelry is at all SugarFree Centers. Call *Agio* for mail-orders.

Think Mink Oil!

Highly recommended by Dr. Richard K. Bernstein for dry skin on the feet. But we use it for all skin care, beautification and anti-aging purposes. Non-toxic and easily absorbed, it leaves the skin with a non-oily, velvety texture while forming a protective barrier against dirt, makeup, cold, heat, and wind. Perfect for active sportspeople and outdoor workers.

#8020 Mink Oil (4 oz.)—$6.25

Skin Savvy

These popular skin-care products, formulated by a nurse, contain only lanolin, soy oil, beeswax, lemon oil, and vitamin E—no alcohol to dry and crack the skin. Perfect for total body care. Unisex Lip Savvy contains sunscreen (PABA).

8003 Skin Savvy (2 oz.)—$4.50
#8004 Skin Savvy (4 oz.)—$6.25
#8005 Skin Savvy (Travel Size .25 oz.)—98¢
#8006 Lip Savvy (Orange)—$1.29
#8007 Lip Savvy (Peppermint)—$1.29

Cold Comfort with Scot-Tussin

Colds are crummy whether you have them at home or on a trip. Consequently, it's wise to have both varieties of sugar-free Scot-Tussin in your home medicine cabinet and in your travel kit. The **Cough & Cold Medicine** relieves coughing and sneezing as well as drying up a runny nose. The **Expectorant** helps to loosen phlegm so you can cough it up. Tell your doctor about these excellent sugarfree products for diabetics created by a diabetic pharmacist.

#8018 Scot-Tussin Cough & Cold Medicine—$2.99
#8019 Scot-Tussin Expectorant—$2.99

Cough-Off

Along with versatile Scot-Tussin products you should always keep on hand a supply of throat-soothing N'ICE Sugarless Lozenges. We have a distinctive flavor for every taste.

#0310 Cherry—89¢ #0308 Citrus—89¢
#0309 Eucalyptus—89¢ #0307 Mint—89¢
#0311 Children's Berry—89¢

No doubt about it . . . TOM'S OF MAINE

You can put your total faith in the natural personal care products from Tom's of Maine. They are additive-free, containing no preservatives, artificial dyes, synthetic sweeteners or flavors. The mouthwash contains no alcohol, which makes it safe for children and adults with alcohol problems. (Alcohol has been implicated in mouth and tongue cancer in certain sensitive individuals.) Unlike virtually every other deodorant, Tom's has no aluminum, and recent reports indicate that aluminum may be implicated in Alzheimer's disease.

Why take chances when you and your family can all safely use these wholesome and effective products?

#8010 Tom's Cinnamint Toothpaste—$3.98
#8011 Tom's Spearmint Toothpaste—$3.98
#8012 Tom's Cinnamint Mouthwash—$3.98
#8013 Tom's Spearmint Mouthwash—$3.98
#8008 Stick Deodorant (Apple-Herbal)—$3.38
#8009 Stick Deodorant (Unscented)—$3.38

ALCOHOL—Your Way

We have both alcohol swabs and the Alcohol Applicator—a 1 3/4" high plastic bottle with 1 oz. of alcohol. Take off the leakproof cap and *voilà* the top is an applicator. Refillable. Two sizes and brands of swabs.

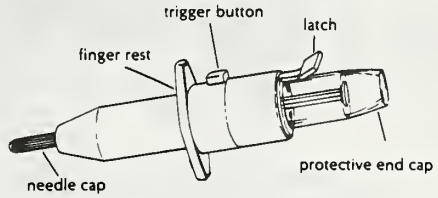
#1033 Alcohol Applicator—$1.95
#1008 Alcohol Swabs (B-D 100)—$2.00
#1079 Alcohol Swabs (Monoject 200)—$3.65

Inject-Ease– The Educator's Friend

A Nurse Writes:

"Today all the new insulin starts in our practice are shown the Inject-Ease . . . The almost unanimous opinion of our patients is that it decreases the physical and emotional pain of injections."

Kathy Sanders, R.N.





Having experienced the "tears and loud protests" of many patients learning to self-inject, Kathy was delighted to change to Inject-Ease. That's because there's never any need to *force* the needle through the skin. Inject-Ease does it — at the touch of a button!

Less pain than with conventional technique

The relative lack of pain when using Inject-Ease is a pleasant surprise for patients who have been giving their own injections. This has been confirmed in a clinical study in which *almost 90%* of participants reported less pain with Inject-Ease. The reason lies in the design of the Inject-Ease tip. When pressed against the skin, it causes just enough sensation to mask the feeling of the needle penetration. We call it the Inject-Ease "tip effect"!

Additional injection sites become available

Giving injections left-handed is difficult for a right-handed person — or vice-versa. Inject-Ease makes twice as many sites immediately available because it can be used equally well in either hand.

A way to carry pre-loaded syringes

Inject-Ease is the perfect size to carry in tote bag or purse — and it can be used to contain a *pre-loaded* syringe. The needle cap and plunger are protected as shown in the illustration. Just remove the protective caps and give the pre-measured dose — a great convenience for many patients!

Economical and Versatile

Inject-Ease retails for just $30 and is fully guaranteed for *five years*. And now Inject-Ease is compatible with Terumo syringes plus the new 30-unit syringe from Becton Dickinson.

Who *especially* needs Inject-Ease?

1. New patients learning to inject.
2. Children (they *love* it!).
3. Gestational diabetics (it's nice for dad).
4. Patients with "needle phobia."

Palco Labs Santa Cruz, CA

Inject-Ease Order Information

#1096 Inject-Ease—$30.00

Dr. Paul Levin, Director of Palco Labs, first told us about the Napili Kai Beach Club (see Sea Escapes, p.6). He goes there every year to recharge his creativity. It must really work because he has invented many ingenious medical devices for diabetics including the Inject-Ease and:

AUTO-LANCET

An extremely comfortable and reliable finger-sticking device. The only one with a 5-year warranty. Comes in a hard plastic carrying case with 2 lancets and 2 tips one for standard and one for deeper penetration.

#2020 Auto-Lancet—$13.00

#2037 Auto-Lancet Tips (10 standard)—$1.00

INSUL-TOTE

An all-weather carry tote designed especially for diabetics with places for basic supplies. Foam insulation protects from extreme temperatures or impact. Includes a re-freezable refrigerant to keep your insulin cool. Blue nylon, 7"x7"x3", adjustable shoulder strap/handle, , velcro fastener.

#1097 Insul-Tote—$18.25

Accu-Chek II Order Information

#3038 Accu-Chek II Meter—$150.00

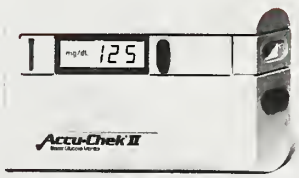
#3050 AccuChek Care Kit with meter—$185.00

(Kit includes: Soft Touch Lancing Device, 25 lancets, 50 Chemstrips, 25 Chemstrips K Urine test for ketones, 25 cotton balls, Diary, Supply case, Instructional casette and manual.)

For order information on other products from Boehringer-Mannheim including the new TRACER Micro Monitor with memory, see Price List pp. 26-29. Call for price on Tracer kit.

THE LINE OF CONFIDENCE℠ IN DIABETES CONTROL

Accu-Chek® II
Blood Glucose Monitor



- Fits into pocket or purse
- Results can be read visually as well as with monitor
- Reads blood glucose values from 20 mg/dl to 500 mg/dl
- Uses CHEMSTRIP bG® reagent strips

CHEMSTRIP bG®
Reagent Strips



- Easy visual reading
- Results in only two minutes
- End point color reactions remain stable for at least seven days
- Economical and convenient

For more information, call toll-free 1-800-858-8072.

BOEHRINGER MANNHEIM DIAGNOSTICS
Boehringer Mannheim Diagnostics
9115 Hague Road
PO Box 50100
Indianapolis, IN 46250

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Pet Power





Candy and Jet Sangster

Before one of our diabetic employees, Amy Miller, left us to have her perfect baby, Andrew, she used to bring in her perfect Beagle, Lester, every Wednesday. He stayed in the patio off the reception area where he was visible to everyone who came in. Some of those who came in were not in a great frame of mind. They had just been diagnosed diabetic and they were scared and worried. On top of that, they had been told to go out and learn how to stick their fingertips and take blood sugars and spend money they didn't want to spend on a machine they didn't want to buy to control a disease they didn't want to have.

But if they noticed Lester, they usually smiled in spite of themselves. Often they would go out and talk to him and scratch him behind a floppy ear. You could tell they felt a lot better. We called Lester our pet therapist and felt that in some cases he did patients more good than the most learned of diabetologists.

A dog can even save your life. At least, one saved Candy Sangster's life. Candy is a long-time friend of ours at the SugarFree Center. One day she came in to tell us that her 6-year-old Doberman, Jet, had been nominated for the Ken-L Ration Dog Hero of the Year Award. She gave us a copy of the nomination write up:

Date of Heroic Deed: October 31, 1986

Around dinner time on Halloween Hazel Lavin heard a dog barking. It was Jet, the Doberman belonging to her next door neighbors, George and Candy Sangster. Hazel looked out the window, saw nothing irregular, and returned to what she was doing.

When the barking didn't stop, Hazel looked out the window again and saw Jet was in her front yard. She became worried. Jet wasn't the kind of dog who barked a lot. Stranger still, the Sangsters had trained Jet never to leave their yard without them. Hazel wondered how the dog had opened the gate without help.

Hazel noticed that the Sangster's front door was open and that the lights were on. She called Candy Sangster on the phone, letting it ring repeatedy. When no one answered, thinking something must be wrong, she called the emergency number 911.

As soon as the paramedics arrived, Jet ran frantically between the driveway and the Sangster's front door. She looked over her shoulder and waited for them. Hazel and the paramedics agreed that Jet seemed to be motioning them inside.

They found Candy Sangster on the living room floor unconscious. A diabetic, Candy had passed out earlier in the evening with severe hypoglycemia. As the paramedics worked feverishly to bring Candy around, Jet stood protectively beside her.

If not for Jet, the paramedics said that Candy would not have lived through the weekend. Her husband was out of town and not due back until Sunday, so no one would have been there to find her and help.

We were so impressed with Jet's achievement that we sent the information on how to vote for Jet in all our mail orders. You may have received this information and you may even have voted for Jet. Many people did. **Jet was the winner!**

Ms. Jet went to Washington, D.C. for the award ceremony. (She took along Candy and George.) They all stayed at the luxurious and historic Willard Hotel. Jet was the only dog to ever spend the night there. (If you want to follow in her paw-steps, on your next trip to Washington ask for room 528 and see if they have a "Jet Slept Here" plaque on the door.)

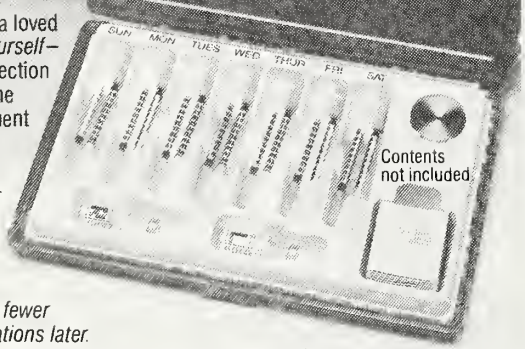
Jet rode in a stretch limo to the ceremony where she won everyone's hearts just as she had won their admiration.

When we posted the notice about Jet's victory, one SugarFree visitor remarked, "Gee, if Jet could be taught to inject Glucagon, she'd be as good to have around in an emergency as my husband." That set us to thinking. Maybe we need to set up a school to train Injecting Paw Dogs for diabetics to adopt. Jet would be a great first pupil.

P.S. Candy and George and Jet send their thanks to all of you who voted for her.

Did you take your shot today?

If you've asked a loved one, or even *yourself*– **CONTROL**™ Injection Monitor Kit is the answer. Investment in **CONTROL**™ gives you at-a-glance monitoring of daily injections. *Tighter blood sugar control now may mean fewer health complications later.*



Patent Pending

CONTROL's unique compartments hold a week's supply of syringes, medication and swabs. Spent syringes may be safely disposed after using the built-in needle break-off device. Lightweight, rugged; convenient for home use or travel.

Special introductory offer: $29.95 (reg. $39.95)

I want peace of mind. Please send me ____ **CONTROL**™ Kit(s) @ $29.95 ea. (IL residents add 6¼% sales tax.) Add $3.00 for shipping & handling.

For quick service call:
TOLL-FREE 1-800-426-6390
(In Illinois call 312-232-1373)
Please have VISA or MC ready

Or, complete coupon and mail to:
Mustang Enterprises, Inc.
Injection Monitor Division
P.O. Box 748 • Geneva, IL 60134

☐ VISA ☐ MC #_____-_____-_____-____ Exp. Date _____
☐ Personal Check

Name _____
Address _____
City _____ State _____ Zip _____

Please allow 4 weeks for delivery.



Photo and cat courtesy of Justin Cole

Hey, how about us cats? We have Pet Power too!

One Touch Order Information

#3062 One Touch Meter with Kit—$211.00

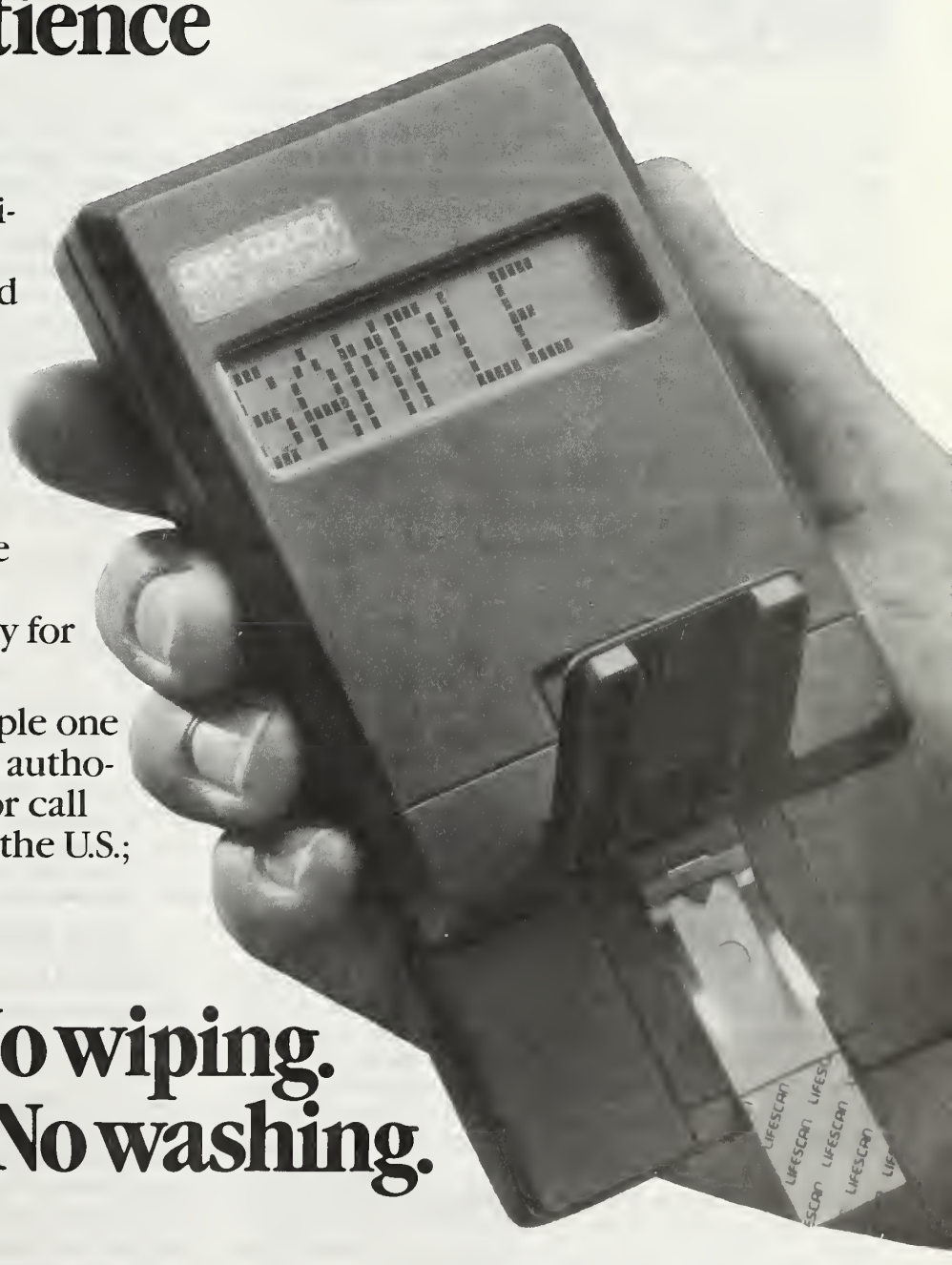
(Kit includes: meter, carrying case, penlet, 20 lancets, 25 strips, 4 N batteries, control solution, checkstrip, manual, audio tape.)

There has been something of a shortage of One Touches, but we think we're fairly well out-of-the-woods now. We also have a limited number of Lifescan's excellent Glucoscan 3000 meters with memory. Please call for the very advantageous prices.

I N T R O D U C I N G

ONE TOUCH™ BLOOD GLUCOSE MONITORING SYSTEM

Technology that tests your glucose, not your patience



Finally, blood glucose monitoring takes just one touch—when you apply the blood sample.

Advanced technology has eliminated timing, wiping, blotting and washing, giving you reliable results in just 45 seconds. And One Touch automatically stores up to 250 results in memory for easy recall.

To find out more about simple one touch testing, contact your authorized LifeScan distributor, or call toll-free: 1 800 227-8862 in the U.S.; 1 800 663-5521 in Canada.

No timing. No wiping. No blotting. No washing.

LIFESCAN INC

a Johnson & Johnson company

SpectraStat

Bactericidal Skin Cleanser



Kills the spectrum of bacteria

Staphylococcus Aureus
(no resistant strains)
Pseudomonal Aeruginosa
Proteus Vulgaris
Microcuccus Luteus
Eschericia Coli

Bacillus Subtilis
Salmonella Cholerasesuis
Shigella Boydii
Serratia Marcescens
Mycobacterium
Smegmatis

Streptococcus
Klebsiella Pneumoniae
Proteus Mirabilis
Cornybacterium
Diptheri Gravis
Cornybacterium Equi

All those evil-sounding names above may not mean much to you, but we guarantee that they would if you got infected by one of them. Diabetics who stick their fingers to test their blood sugar are opening the door of the skin to all manner of infection. Because we at the SugarFree Center want to protect our clients from potential problems, we have them wash with **SpectraStat** before doing a blood sugar test. We find it superior to alcohol because it is vastly more effective, does not dry the skin, and doesn't affect the results of the test as alcohol can if it isn't completely dry. All our nurses and diabetes self-care specialists protect themselves (and the next client!) by washing with SpectraStat and using it to cleanse the testing area and to soak the tips of all lancing devices

Pump wearers use SpectraStat for cleaning the needle site before insertion and after removal. Diabetics who use lancets or needles more than once can soak them in SpectraStat to prevent bacteria formation.

Elsie, our meticulous Virgo Supervising Nurse educator, urges every diabetic to use **SpectraStat** before testing. She's also waging a one-woman campaign to get all manicurists to use **SpectraStat** in their cold sterilizers and to have clients soak their nails and fingertips in it before manicures to prevent the spread of fungus and bacterial infections. You might give your manicurist a gift of **SpectraStat**. June, who's more involved with her teeth than her nails, gave a bottle to her dentist.

It's hard to believe that a product so tough on bacteria that it's used in hospitals as a surgical scrub is so gentle on people. Unlike other cleansers **SpectraStat** contains no iodine or other harsh chemicals to dry and irritate and age your skin. And the price is amazingly low!

Every medicine cabinet should have a bottle of **SpectraStat** for treating cuts and wounds and abrasions. (Children appreciate the fact that it doesn't sting.) When Barbara was trying to tame two wild kittens that appeared in the yard, she received some scratches that she treated with **Spectra-Stat**. Both the cat taming and the **SpectraStat** worked! Barbara's scratches healed quickly and she now has two loving cats. (Barbara also washes with **Spectra Stat** before inserting her contact lenses.)

We're so anxious for you to try this remarkable new cleanser we're offering this discount coupon:

Enclose this coupon with your order or bring it to a SugarFree Center for a . . .

50¢ Discount on a 4 oz. Bottle of SpectraStat

Name_____

(One coupon per person, please. Offer expires 7-2-88)

#8014 SpectraStat Bactericidal Cleanser (4 oz.) — $5.95
#8015 SpectraStat Bactericidal Cleanser (1 gallon) — $25.00

NOTE

Pharmacies, Diabetes Centers, Hospitals and Dialysis Centers, please contact Douglas Ziegeler, (818) 994-1093, for information on how to make SpectraStat available to your clients and patients.

Tender Gloving Care



Because of blood-transmited diseases it's the law that anyone in contact with blood must take precautions. All our nurses and self-care specialists wear disposible vinyl medical examination gloves when they teach meters. Since so many of our employees are diabetic, it's especially important for them to wear gloves because of the unsealed little holes they may have in their fingers from their own testing

Any diabetic who takes blood sugars can have extra protection from infection by wearing these same gloves when doing germy activities. June keeps a box at home for cleaning , painting, and cat box-emptying. Barbara puts on a new pair each time she works in her garden They keep her hands cleaner than canvas gloves and give her a more sensitive touch for planting seeds or transplanting bedding plants. Dispenser boxes of 50 gloves.

#2044 Disposable Gloves (Medium) — $5.25
#2045 Disposible Gloves (Large) — $5.25

For Well-Organized People
(And Those Who Would Like To Be)

At SugarFree we employ only diabetics and Virgos. (Just kidding, Equal Opportunities Commission!) Still, we *do* have 3 Virgos—all paragons of organization, neatness, and efficiency.

But you don't have to be a Virgo to be organized, neat and efficient in your blood sugar testing. You can accomplish this by keeping your meter and all testing materials together in a hospital work station or system case. Although these were designed for hospitals, many diabetics are using them to hold all their testing paraphernalia , both for efficiency's sake and so that in case of an emergency (fire, earthquake, tidal wave) they can just grab everything and run.

Order the case or station only for the meter you use.

#3065 Glucoscan 2000/3000 Hospital system Case—$16.00
#3066 Ames Gluco System Hospital Work Station—$47.00
#3063 Accu-Chek Hospital Testing Station—$47.50







There's nothing that can ruin a trip more thoroughly than uncomfortable feet. Well, one thing can ruin it more—some kind of foot problem like a blister. For comfort and protection from injury, we recommend some pre-trip preventive maintenance. Visit your podiatrist for a foot fine-tuning. Take along two pairs of broken-in running shoes or the new walking shoes. They're now accepted as proper attire almost everywhere. You see well-dressed male and female executives trudging to their Manhattan offices in their running shoes. (Presumably they change once there.) Then for blister prevention as well as glorious comfort we heartily recommend (and use ourselves) . . .

SUGARFREE DOUBLE-LAY-R SOCKS

These great socks were first brought to our attention by Peter Lodewick, M.D., author of *A Diabetic Doctor Looks at Diabetes, His and Yours*, who said: **"Double Lay-R Socks are comfortable and provide excellent absorption and protection from blisters. I recommend them to diabetics for everyday use as well as for athletics."**

Soft as cashmere and twice as absorbant as cotton , these socks help eliminate fungus infections by wicking heat and moisture away from the foot. They prevent blisters because the two layers of the sock rub against each other when you walk instead of the sock rubbing against your skin. With two layers, these socks last twice as long as regular socks. (The manufacturer offers a money-back guarantee if the socks cause a blister or wear out within 1000 miles!) We find these socks tend to run slightly on the small side, so if you're on the size borderline, it's better to go for the next size up, but you do want a nice snug fit—you don't want loose socks any more than loose shoes.

Shoe Size	Double-Lay-R Sock Size
Womens 7 or smaller	7-9
Womens 7 1/2 to 10	9-11
Men's 9 1/2 or smaller	9-11

Shoe Size	Double Lay-R Sock Size
Men's 10-13	10-13
Men's 13 and up	13-16

The crew socks come up quite high on the calf, the mini-crews are medium, and the anklets are low-cut rather like women's tennis and golf socks. You'll probably first use these for sports and travel, then if you're like most people, you'll switch to them for everyday use.

Order Numbers - Sizes - Colors - Prices

7061 Anklet (7-9 White)
7062 Anklet (9-11 White)
7063 Mini-Crew (7-9 White)
7064 Mini-Crew (9-11 White)
7065 Mini-Crew (10-13 White)
7066 Mini-Crew (13-16 White)
7067 Crew (7-9 White)
7072 Crew (7-9 Black)
7074 Crew (7-9 Light Blue)
7075 Crew (7-9 Navy)
7076 Crew (7-9 Pink)
7068 Crew (9-11 White)
7078 Crew (9-11 Black)
7079 Crew (9-11 Brown)
7080 Crew (9-11 Light Blue)
7081 Crew (9-11 Navy)
7082 Crew (9-11 Pink)
7083 Crew (9-11 Sahara Green)
7069 Crew (10-13 White)
7084 Crew (10-13 Black)
7085 Crew (10-13 Brown)
7086 Crew (10-13 Light Blue)
7087 Crew (10-13 Navy)
7088 Crew (10-13 Sahara Green)
7070 Crew (13-16 White)

CLOUD-WALKING WITH SPENCO

To complete your foot comfort picture, you should put Spenco insoles in *all* your shoes. Because she has so little fat cushioning on the soles of her feet, June's podiatrist put her onto these, and she hasn't been off them since. You'll find that having Spencos in your shoes will prevent fatigue and promote a sunny disposition. (Tired aching feet are a sure passport to Grouchland.)

#7100 Spenco Insoles #1 (women's shoe size 5-6)___$7.00
#7101 Spenco Insoles #2 (women's shoes size 7-8; men's 6-7)___$7.00
#7102 Spenco Insoles #3 (women's shoe size 9-10; men's 8-9)___$7.00
#7103 Spenco Insoles #4 (men's shoe size 10-11) ___$7.00
#7104 Spenco Insoles #5 (men's shoe size 12-13)___$7.00

The Diabetic Foot

If you're diabetic, watch for signs of redness, ulcers, or infection on your feet. Your feet may not be sensitive to pain, so regular visual inspection is critical. If you are a diabetic, it is essential that you consult a doctor regularly about your feet. **There is no such thing as a minor problem with a diabetic foot!**

At the West LA Foot Center you are examined by both an orthopedist and a podiatrist. With two professional opinions you can be confident, yet the cost is no more than an examination by one doctor. If you have any kind of foot problem, please call the West LA Foot Center at Century City Hospital **(213)201-6677.**



FOOTNOTES



SugarFree Center Van Nuys

What is a SugarFree Center?



SugarFree Center Inland Empire

A SugarFree Center is a place where diabetic people feel at home. Everyone here understands diabetes, either because he or she is diabetic, has a diabetic family member or is an experienced specialist in the most current and effective therapy for diabetes. Our directors, June Biermann (an insulin-dependent diabetic for 22 years) and Barbara Toohey, have written six books to further the cause of good self-care and to inspire all diabetics to become their own best therapists. That's why we describe the SugarFree Centers as "the diabetic's own service for living and learning."

Since learning is the key to liberation from diabetes problems, the SugarFree Centers offer over 70 books and pamphlets and the best of audio and video tapes for self-instruction. Furthermore, we give free instruction in the use of all diabetes equipment and supplies and specialized exercise and weight loss products from our large inventory. And we provide full dietary information for all the gourmet health foods and sweet treats on our shelves. In seeking independence for people with diabetes, we also keep ourselves independent. As true advocates for the diabetic, we represent no manufacturer of diabetes equipment and products. Our directors and staff members personally use and evaluate every item we offer at the SugarFree Centers. Our SugarFree clients also discover and help us screen new products. Since 1978 our product list has grown from 10 items to more than 600. We strive to stay in the avant-garde of advancements in therapeutic products, educational materials, and health foods for diabetics.

As people who see diabetes from an insider's point of view, we constantly monitor the economic problems associated with having diabetes. But because of our belief in service and education above all, we cannot indulge in deceptive price cutting. Deceptive, because if you're sold something with no instruction in how to use it, you're being cheated. (We're the only diabetes service that includes with each meter sold by mail-order a $20 teaching certificate for the Certified Diabetes Educator who gives the meter lesson.) Even so, because of quantity buying we can keep our prices fair and competitive.

June and Barbara edit the nation's leading diabetes consumer publication, the *Health-O-Gram,* which is known affectionately as the *H-O-G*. This is both an acronym for the title and a tribute to all the hogs who have given their pancreases for the production of insulin. The *H-O-G* covers the latest advances in diabetes therapy, and is a catalog describing the products available in our centers and from our national mail-order service, but most important, it is a practical guide to an active, healthy life as a diabetic and a spirit-raiser guaranteed to make diabetics feel better about their disease and themselves.

The only way you can truly understand what a Sugar-Free Center is and does is to visit one in person. You'll find it's not a clinic and not a store, but some of each and a lot of neither. All in all, it's a unique experience in health and life enhancement. We look forward to welcoming you soon!

WHAT IS THE SUGARFREE ASSOCIATION?

The SugarFree Association is our way of showing appreciation to our old friends and to our new friends with whom we hope to have a lasting relationship. For the nominal membership fee of $10 you will receive benefits and convenience and fun that will far exceed the initial investment:

- A certificate worth $5 on your next purchase from the SugarFree Center.
- A free package of test strips (or the equivalent value in other SugarFree product) after the purchase of 13 of the same size package of strips.
- A year's subscription to the *Health-O-Gram.*
- End-of-the year accounting (on request) for tax purposes.
- A combination personal Membership Card/Diabetes I.D. Card/Hospital Admission Information Card.
- SugarFreebies—free samples of new products (usually food productst) that we're testing for worthiness.
- Members Only Specials. When we have a limited number of items to close out or specials on newly-introduced products, we let the Association members have the first opportunity to purchase them at reduced prices.
- *H-O-G* Back Issues. While they last we will send you any back issues your request—free if you're placing an order or if you ask for them at any SugarFree Center.
- HONK IF YOU'RE SUGARFREE bumperstrip. (You'll get a $50 gift certificate if June or Barbara spots it on your car while you're driving.)

Join today by phone or by mail on your SugarFree Order Blank

Announcing the

SugarFree Center Mail Order Pharmacy



Heave a sigh of relief! At long last the SugarFree Center can provide you with **ALL** your prescription diabetes-related medications by mail order as well as **ALL** your other prescription drugs. We can also provide you with syringes by mail order. Yes, we know they're technically non-prescription, but because of the weird California law governing syringe sales: 1) They cannot be sold except by a physician or pharmacist. 2) If they're sold by mail order, the person who is purchasing them must have a prescription on file. If you don't want to bother getting a syringe prescription from your doctor, just give the pharmacy your doctor's name and phone number and they will happy to call him or her for you. Once you have a syringe prescription on file, it's good forever or until we get the California law changed, whichever comes first. The following is our list of currently available diabetes prescription drugs and syringes:

DIABETES PRESCRIPTION DRUGS

(For quantities of 100 except where noted)

Brand Name		Generic Name	Generic Price	Brand Price
Diabenese	100 mg	Chlorpropamide	$4.25	$17.50
Diabenese	250 mg	Chlorpropamide	$9.75	$35.95
Diabeta	1.25 mg	Glyburide	—	$8.95
Diabeta	2.5mg	Glyburide	—	$16.99
Diabeta	5.0mg	Glyburide	—	$27.95
Dymelor	250mg	Acetohexamide	$14.54	$17.10
Dymelor	500mg	Acetohexamide	$29.52	$32.24
Glucagon	1U			$16.95
Glucotrol	5mg	Glipizide	—	$21.20
Glucotrol	10mg	Glipizide	—	$37.50
Micronase	1.25mg	Glyburide	—	$11.75
Micronase	2.5mg	Glyburide	—	$18.25
Micronase	5.0mg	Glyburide	—	$29.65
Orinase	250mg	Tolbutamide	—	$9.10
Orinase	500mg	Tolbutamide	$5.39	$17.20
Tolinase	100mg	Tolazamide	$12.10	$17.50
Tolinase	250mg	Tolazamide	$19.55	$36.95
Tolinase	500mg	Tolazamide	$33.58	$70.25

HOW TO ORDER

We cannot at this time combine pharmacy orders with regular SugarFree Orders because we're still processing regular SugarFree orders at our main office in Van Nuys. The California law states that pharmacy orders must be received and packed and shipped in the same place. We hope to have our entire order-receiving and shipping operation out in Chatsworth with the pharmacy by the time you get the next *H-O-G*, but in the meantime, please bear with us and . . .

Order all your prescription drugs and syringes on the Pharmacy order form inserted in the center of the *H-O-G*. Complete instructions for ordering by mail or phone are on that order form. You will receive a new order form in each shipment. **Pharmacy Order Numbers:**
Nationwide: 1-800-221-6779 California: 1-800-221-5779

Order everything else mentioned in the *Health-O-Gram* on the inserted *blue* SugarFree order form. This applies to all of the products (including insulin) found on our Price List, pp. 26-29

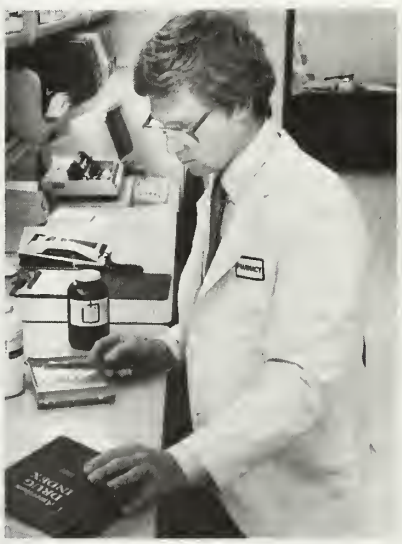
Or you can call on our regular SugarFree Order Numbers:
Nationwide: 1-800-972-2323 California: 1-800-336-1222

SYRINGES

(For quantities of 100)

Brand Name & Size	Price
Becton-Dickinson 1/2 cc. (Lo-Dose)	$19.99
Becton-Dickinson 1cc	$19.99
Becton-Dickinson 1/3 cc	$19.99
Clinipak 1/2cc	$21.99
Clinipak 1cc	$21.99
Monoject 1/2cc	$19.99
Monoject 1cc	$19.99
Terumo 1/2cc	$12.25
Terumo 1cc	$12.50

MEET BILL BECK



Pharmacy Director Bill Beck, Pharm. D. is on the job at the Sugar-Free Center Mail Order Pharmacy making sure your questions are answered intelligently and your prescriptions are filled with meticulous care. We're certain you'll enjoy getting to know him as much as we have.

SUGARFREE CENTER PRICE LIST

To Order Call: Nationwide: 1-800-972-2323; California 1-800-336-1222

DIABETES SUPPLIES AND EQUIPMENT

BATTERIES

3004	1.5 Volt Size AA (4)	4.19
3048	1.5 Volt Size N (4)	3.60
3073	6 Volt Alkaline	4.00
3017	6 Volt Size J	3.80
3023	9 Volt	2.85
1058	Sleep Sentry	.90

BLOOD SUGAR TESTING

FINGER PUNCTURE DEVICES & SUPPLIES

3031	Accu-Drop	13.50
1033	Alcohol Applicator	1.95
1008	Alcohol Swabs (B-D 100)	2.00
1079	Alcohol Swabs (Monoject 200)	3.65
2020	Auto-Lancet	13.00
2037	Auto-Lancet Tips (10)	1.00
2009	Autolet II	24.00
2014	Autolet Platforms (10) Orange	1.00
2016	Autolet Platforms (10) White	1.00
2013	Autolet Platforms (10) Yellow	1.00
2018	Autolet Platforms (200) Orange	7.90
2017	Autolet Platforms (200) Yellow	7.90
2030	B-D Autolance	12.00
2031	B-D Microfine Lancets (100)	5.70
2047	Cotton Balls (300 Pure)	.99
2039	Glucolet	15.00
2041	Lancets (200 Generic Yellow)	9.00
2012	Lancets (200 Monoject Blue)	11.50
2011	Penlet	15.00
2036	Penlet Caps (3)	1.50
8014	Spectrastat (4 oz.)	5.95
8015	Spectrastat (gallon)	25.00
2032	Unilets (200)	11.00

LABORATORY TESTS

0175	Self Assure HGb A1c Test	18.00

METERS

3038	Accu-Chek II Meter	150.00
3050	*Accu-Chek II Care Kit W/Meter*	185.00
3063	*Accu-Chek Hospital Test Station*	47.50
3030	Betascan Audio Meter	610.00
1067	*Strip Guide*	12.00
3040	Diascan-S Meter	154.50
3058	*Diascan-S System Kit W/Meter*	190.00
3045	*Viewing Door for diascan 1200*	2.00
3071	ExacTech Meter W/Kit	205.00
3001	Glucochek SC Audio Meter W/ Kit	399.00
3003	Glucochek SC Meter	149.99
3006	*Glucochek SC Kit With Meter*	180.00
3042	*Full Strip Carrier*	5.00
3044	*Half Strip Carrier*	5.00
3018	*Strip Splitter II*	29.95
3036	Glucometer II Meter	150.00
3037	*Glucometer II Kit With Meter*	179.95
3035	*Glucometer II Kit With Memory*	195.00
3066	*Glucometer II Hosp Wk Station*	47.00
3055	Glucometer M Meter	240.00
3057	*Glucofacts Printer*	660.00
3056	*Glucofacts Software*	419.00
3033	Glucoscan 3000 Meter	169.95
3020	*Glucoscan Starter Kit W/O Meter*	29.95
3059	*Data Manager*	299.00
3064	*Data Manager Printer Tape*	9.95
3065	*Hospital System Case*	16.00
3062	One Touch Meter With Kit	211.00
3060	Tracer Meter	130.00
3027	Trendsmeter	180.00
3070	Trendsmeter System Kit	269.95

METER CONTROLS & CHECK STRIPS

3052	Accu-Chek II Control (Lo-Hi)	7.50
3026	Betascan Confidence Strip A	3.00
3010	Dextro-Chek Control (High)	6.75
3011	Dextro-Chek Control (Low)	6.75
3008	Dextro-Chek Control (Normal)	6.75
3072	ExacTech Control	9.00
3054	Gluco System High Control	7.05
3068	Gluco System Low Control	7.05
3053	Gluco System Normal Control	7.05
3005	Glucochek SC Check Strip	1.50
3034	Glucometer II Check Paddle	3.15
3019	Glucoscan Control	7.00
3069	One Touch Glucose Control (2)	7.50
3051	Sugar Chex (Low, Mid, Elevated)	12.00
3029	Trendstrip Control	9.00
3067	Tracer/bG Control	7.60

METER ONLY TEST STRIPS

2048	ExacTech Strips (50)	31.95
2005	Glucoscan Strips (50)	27.95
2019	Glucoscan Strips (100)	52.45
2043	One Touch Strips (50)	27.95
2040	Tracer Strips (50)	25.95

METER &/OR VISUAL TEST STRIPS

2022	Betascan A Strips (50)	27.00
2034	Diascan Strips (52)	27.50
2001	Chemstrips bG (25)	14.00
2002	Chemstrips bG (50)	26.20
2035	Chemstrips for Accu-Chek II (50)	26.20
2038	Chemstrips for Accu-Chek II (100)	49.75
2003	Dextrostix (25)	15.30
2004	Dextrostix (100)	50.50
2015	Glucostix (50)	27.05
2024	Glucostix (100)	50.05
2049	Glucostix (25 in Foil)	15.30
2026	Trendstrips (25)	13.50
2027	Trendstrips (50)	25.00
2042	Trendstrips (50 slimpak)	26.00
2007	Visidex II (25)	15.30

CARRYING CASES

4023	Accu-Chek II Carrying Case	13.95
3063	Accu-Chek II Hosp Test Station	47.50
4021	Accu-Chek II Supply Case	16.95
4001	Diabetic Carrying Case (Larken)	19.95
4025	Diascan Travel Bag	16.95
3066	Glucometer II Hosp Work Station	47.00
3065	Glucoscan Hosp System Case	16.00
4026	Glucoscan Supply Case	7.95
3013	Glucoscan 2000-3000 Case	9.95
1097	Insul Tote	18.25
4027	Medicool Insulin Protector	29.95
1002	PDI Case (Holds 1 syringe)	7.95
1042	PDI Case (Holds 5 syringes)	10.50
1081	Preci-Jet Case (Blue Leather)	25.99
3061	Tracer Case	13.95

Wallets

4006	Insulin (Black)	11.95
4007	Insulin (Brown)	11.95
4010	Insulin (Navy Blue)	11.95
4008	Insulin (Wine)	11.95
4016	Insulin (Surprise Color)	10.95
4019	Monitoring (Black)	13.95
4011	Monitoring (Brown)	13.95
4014	Monitoring (Navy Blue)	13.95
4012	Monitoring (Wine)	13.95
4018	Monitoring (Surprise Color)	12.95

EXERCISE & SPORTS

7089	Exercise for Life (VHS)	39.95
7015	Exercise Slide Card	1.00
7025	Sportach Pedometer	16.00
7008	Sugarfreesbie	3.00

INSULIN & INSULIN AIDS

INSULINS

0004	Lilly Beef-Pork Ultralente	9.15
0008	Lilly Humulin BR	12.95
0082	Lilly Humulin Lente	12.95
0036	Lilly Humulin NPH	12.95
0035	Lilly Humulin Regular	12.95
0011	Lilly Humulin Ultralente	12.95
0097	Nordisk Human NPH	10.75
0098	Nordisk Human Regular	10.75
0003	Nordisk Purified Pork Mixtard	10.75
0002	Nordisk Purified Pork NPH	10.75
0001	Nordisk Purified Pork Regular	10.75
0024	Novo Purified Beef Ultralente	11.95
0009	Novo R Cartridges	12.10
0038	Novolin Lente	12.10
0039	Novolin NPH	12.10
0037	Novolin Regular	12.10
0006	Novolin 70/30	12.10

INSULIN INJECTION WITH & W/O NEEDLE

1071	Autojector	39.95
1045	Dextruclip	11.75
1096	Inject-Ease	30.00
1001	Injectomatic (1/2 cc)	22.00
1048	Injectomatic (1cc)	22.00
1080	Instaject I	59.95
1010	Medi-Jector II	825.00
1020	*Adaptor*	3.00
1021	*Adaptors (12)*	34.20
1066	*Cleaning Solution*	1.75
1005	*Cleaning Tool*	.50
1019	*Instruction Video Tape (Beta)*	29.95
1024	*Instruction Video Tape (VHS)*	29.95
1038	*Nozzle Cap*	.55
1026	*O Ring*	.18
1049	*Saline Solution*	1.50
1051	*Spacer (Hole)*	.50
1050	*Spacer (Solid)*	.50
1029	*Stopper*	.55
1022	*Vial Holder (Lilly, SquibbNovo)*	5.00
1023	*Vial Holder (Nordisk)*	7.50

1030	Medi-Jector EZ	695.00
1031	*Adaptors (3-pack)*	8.95
1036	*Black Nozzle Wrench*	1.30
1032	*Instruction Video Tape (VHS)*	19.95
1037	*Nozzle Cap*	.55
1027	*"O" Ring*	.15
1034	*Stopper*	.55
1035	*White Plunger Cleaning Tool*	2.00
1009	Needle Clipper	3.95
1074	Novopen	95.00
1075	*Novo Disposable Needles (100)*	10.80
0009	*Novo R Cartridges*	12.10
1064	Preci-Jet 50	689.00
1065	*Adaptors (6-pack)*	16.95
1095	Vitajet	549.00
1094	*Instruction Video Tape (VHS)*	10.00
1060	*Vial Holder*	6.00
1061	*Vitaclean Germicidal*	3.00

INSULIN REACTION TREATMENTS

	Dextro-Energens	
0130	Chocolate	1.25
0132	Lemon	1.25
0131	Mint	1.25
0133	Natural	1.25
	Dextrosols (Available June '88)	
0025	Lemon	1.19
0005	Natural	1.19
0026	Orange	1.19
0054	Lemon (24)	25.00
0033	Natural (24)	25.00
0055	Orange (24)	25.00
1006	Glutose (3 doses)	2.98
1003	Insta-Glucose (1 dose)	2.75
1078	Insulin Reaction Gel (4 doses)	3.65
1011	Sleep Sentry	275.00

LOG BOOKS

5005	Chemstrip Log Book	1.50
5002	Clinilog	.50
5006	Diascan Log Bcok	1.00
5004	Glucoscan Log book	.75
5003	Larken Diary	.50

MEDICATIONS

	Halls	
0150	Cough Drops (Mentho-Lyptus)	.50
	Nice Sugarless Lozenges	
0310	Cherry	.89
0311	Childrens Berry	.89
0308	Citrus	.89
0309	Eucalyptus	.89
0307	Mint	.89
	Scott-Tussin	
8018	Cough and Cold Medicine	2.99
8019	Expectorant	2.99

PERSONAL CARE

8008	Deodorant-Apple-Herbal	3.38
8009	Deodorant-Unscented	3.38
8006	Lip Savvy (Orange)	1.29
8007	Lip Savvy (Peppermint)	1.29
8020	Mink Oil (4 oz.)	6.25
8012	Mouthwash-Cinnamint	3.98
8013	Mouthwash-Spearmint	3.98
8003	Skin Savvy (2 oz.)	4.50
8004	Skin Savvy (4 oz.)	6.25
8005	Skin Savvy (Travel size: .25 oz.)	.98
8014	Spectrastat (4 oz.)	5.95
8015	Spectrastat (gallon)	25.00
8010	Toothpaste-Cinnamint	3.98
8011	Toothpaste-Spearmint	3.98
2044	Tru-Touch Disposable Gloves50M	5.25
2045	Tru-Touch Disposable Gloves50 L	5.25

PROFESSIONAL SUPPLIES

3063	Accu-Chek II Hosp Test Station	47.50
3066	Glucometer II Hosp Wk Station	47.00
3065	Glucoscan Hosp System Case	16.00
8014	Spectrastat (4 oz.)	5.95
8015	Spectrastat (gallon)	25.00
7071	Teaching Hand	9.95
2044	Tru-Touch Disposable Gloves50M	5.25
2045	Tru-Touch Disposable Gloves50L	5.25

PUMP SUPPLIES

1055	Caraskin	.42
1056	Caraskin (100)	40.00
	Minimed (Pacesetter)	
1014	Syringe Assembly	1.20
1013	Syringe Assembly (30)	35.00
1016	Infusion Set 24" Straight	2.40
1015	Infusion Set 24" Straight (30)	70.00
1047	Infusion Set 24" Bent	2.40
1046	Infusion Set 24" Bent (30)	70.00
1044	Infusion Set 42" Bent	2.40
1043	Infusion Set 42" Bent (30)	70.00
1017	Tegederm (1)	.67
1018	Tegederm (100)	65.00

SOCKS & INSOLES

	Double Lay-R (Socks)	
	Anklet (7-9)	
7061	White	5.95
	Anklet (9-11)	
7062	White	5.95
	Crew (7-9)	
7072	Black	6.95
7074	Light Blue	6.95
7075	Navy	6.95
7076	Pink	6.95
7067	White	6.95
	Crew (9-11)	
7078	Black	6.95
7079	Brown	6.95
7080	Light Blue	6.95
7081	Navy	6.95
7082	Pink	6.95
7083	Sahara Green	6.95
7068	White	6.95
	Crew (10-13)	
7084	Black	6.95
7085	Brown	6.95
7086	Light Blue	6.95
7087	Navy	6.95
7088	Sahara Green	6.95
7069	White	6.95
	Crew (13-16)	
7070	White	6.95
	Mini-Crew	
7063	White (7-9)	5.95
7064	White (9-11)	5.95
7065	White (10-13)	5.95
7066	White (13-16)	5.95
	Spenco (Insoles)	
7100	Ladies 5-6	7.00
7101	Ladies 7-8/Mens 6-7	7.00
7102	Ladies 9-10/Mens 8-9	7.00
7103	Mens 10-11	7.00
7104	Mens 12-13	7.00

STRESS REDUCTION

7054	Relaxation/Reinforcement Audio	10.00
7026	Stress Control Card	1.99
7010	*With Book*	3.50
7022	Stress Management Audio	10.95

URINE TESTS

	Glucose Only	
6007	Diastix (50)	3.25
	Glucose & Ketones	
6001	Chemstrips UGK (100)	10.15
6006	Keto-Diastix (50)	5.65
	Ketones Only	
6004	Ketostix (50)	5.25

VIDEO CASSETTES

7090	Diabetes and Pregnancy (VHS)	199.00
7089	Exercise for Life (VHS)	39.95

VISUAL AIDS

3031	Accu-Drop	13.50
1012	B-D Magni-Guide	3.98
1053	Click-Count	40.00
1068	IDM (Insulin Dosage Monitor)	2.75
1004	Insul-eze Magnifier (1cc)	7.95
1007	Insul-eze Magnifier (1/2 cc)	7.95
1052	Insulin-Aid	8.98
7011	Pocketlens (2"x3")	1.39

WEIGHT CONTROL

8001	Soehnle Digital Scale	52.50
8002	Weight Talker	99.95

Books

BASIC BOOKS ON DIABETES

9039	Blood Glucose Monitoring	4.00
9055	Diabetes-Glucograf Method	8.95
9054	Diabetes-Reach for Health (1984)	9.95
9064	Diabetes-Self-Care Method	7.95
9089	Diabetic Dr. Looks at Diab(1986)	3.95
9095	Diabetic Woman, The	15.95
9002	Diabetic's Book	9.95
9027	Other Diabetes, The	1.00

COOKBOOKS & EXCHANGES

9061	ADA Exchange Lists (1976)	1.00
9091	ADA Exchange Lists (1986)	1.75
9084	ADA Holiday Cookbook	14.95
9009	Art of Cooking for the Diabetic	11.95
9017	Cake Mix Magic with Batterlite	1.00
9010	Calculating Cook	6.95
9087	Carbohydrate Guide	2.50
	CHANGE OF MENU	
9092	*Basic Diabetic Menu Plan (8 wk)*	29.95
9093	*Diabetic Cooking for 1 or 2 Vol I*	12.95
9101	*Diabetic Cooking for 1 or 2 Vol II*	12.95
9071	*Low Sodium, Low Chol Menu*	19.95
9070	*Change of Menu Supplement*	14.00
9072	*Potluck 1 for Diabetics/Families*	16.95
9096	Creative Cooking for Renal Diets	11.95
9078	Diabetes Control & Kosher Diet	9.95
9022	Diabetic Candy/Cookie/Dessert	7.95
9066	Diabetic Chocolate Cookbook	7.95
9021	Diabetic High Fiber Cookbook	7.95
9050	Diabetic's Food Exchange Handbk	17.95
9012	Diet for a Happy Heart	8.95
9041	Exchanges for all Occasions	8.95
9013	Fabulous High Fiber Diet	7.95

9067	Fit or Fat Target Diet	5.95
9076	Fit or Fat Target Recipes	5.95
9074	Food Values	8.95
9098	Gourmet Recipes for Diabetics	8.95
9053	Guiltless Gourmet	9.95
9063	HCF Exchanges	2.00
9088	Healthy Food Choices	.50
9080	Internat'l Menu Diabetic Cookbk	14.95
9107	Microwaving Light and Healthy	14.95
9106	Microwaving on a Diet	14.95
9025	More Calculated Cooking	6.95
9086	New Laurel's Kitchen (1986)	15.95
9082	Opening Door to Good Nutrition	7.95
9026	Oriental Cooking for the Diabetic	9.95
9103	Pass the Pepper Please!	3.95
9029	Secrets of Saltfree Cooking	7.95
9062	Special Diet Foreign Phrase Book	10.95

EMOTIONAL HEALTH & STRESS

9090	Diabetes; Caring for Emotions	10.95
9014	Feeling Good	4.95
9003	Peripatetic Diabetic	7.95
7007	Self-Esteem Passport	2.95
9097	Type "E" Woman	4.50

EXERCISE & FITNESS

9015	Fit or Fat?	5.95
9104	Racewalking for Fun & Fitness	7.95

PARENTS & CHILDREN

9102	Children with Diabetes	7.95
9040	Diabetes-Guide for Parents	7.95
9085	Kids, Food and Diabetes	11.95
9099	Sugar Isn't Everything	12.95

PREGNANCY

9095	Diabetic Woman	15.95
9033	Gestational Diabetes	3.00
9016	Giving Birth	.25
9020	Joslin Guide for Pregnant Women	24.50
9105	Nutrition and Motherhood	3.95

WEIGHT LOSS

9057	Beyond Diet	15.95
9015	Fit or Fat?	5.95
9034	Free to be Thin	5.95
9035	There's More to Being Thin	5.95

Gourmet Health Food

BAKING MIXES

Batter-Lite Brand

0059	Chocolate Cake Mix	1.89
0060	Lemon Cake Mix	1.89
0061	White Cake Mix	1.89
0062	Chocolate Frosting Mix	1.89
0063	White Frosting Mix	1.89

Blue Heaven

0317	Blue Corn Muffin Mix (1 lb.)	2.60
0321	Blue Corn Pancake Mix (28 oz.)	3.39

BEVERAGES

Canfield's

0018	Chocolate Fudge Soda (6-pk)	2.49

Real Fresh

0148	Milk (8 oz.-3 pack)	1.25

Wines Non-Alcoholic

Ariel

0245	Blanc	4.49
0247	Cabernet Sauvignon	6.49
0248	Champagne	8.25
0246	White Zinfandel	5.49

Zuri

0324	Hans Barth Riesling	7.50
0345	Wine Cellar Special	29.00

CANDIES & DRIED FRUIT

Delty Chocolates

0074	Box of assorted (6 oz.)	5.00
0073	Box of assorted (12 oz.)	9.00
0075	Turtle Loves (10 oz.)	10.95

Franconia Fructose Chocolates

Chocolate Bars

0117	Almond-Hazelnut	2.25
0115	Bittersweet	2.25
0113	Milk	2.25
0116	Milk-Mocha	2.25
0114	Orange-Hazelnut	2.25

Gummi Bears

0146	Jolly Bears	1.49

Toffees

0178	Taste Plus Toffee	1.00

Truffles

0118	Coconut	3.00
0119	Hazelnut	3.00
0120	PassionFruit Mandarin	3.00
0177	Red Wine	3.00
0176	Rum Butter	3.00

Miss Saylor's

0051	Caramel Nougats	1.99
0052	Caramels	1.99
0050	Coffee Breaks	1.99
0182	Decaf Coffee Breaks	2.59
0144	Gourmet Chocolates (8 oz.)	6.50
0053	Taffree	1.99

Sorbee Hard Candies

0090	Butterscotch	.89
0091	Cherry	.89
0093	Chocolate	.89
0092	Cinnamon	.89
0094	Gourmet Delight	.89
0089	Orange	.89
0088	Sour Lemon	.89
0087	Strawberry	.89
0095	Tropical Assortment	.89
0085	Wild Fruit Mix	.89
0086	Wintergreen	.89
0096	Lollypops	.99

Stretch Island Fruit Leather

0257	Apple	.35
0255	Apricot	.35
0259	Blackberry	.35
0258	Grape	.35
0256	Peach	.35

Fruit Ripples

0262	Banana	2.49
0260	Mandarin Cherry	2.49
0261	Pina Colada	2.49

Tree of Life

0306	Raisins (9 Mini boxes)	1.19

CEREALS

Barbara's Bakery

0212	Brown Rice Crisps	2.59
0213	Corn Flakes	1.99
0214	Toasted O's	2.19

Kashi Co.

0100	Kashi	2.40
0101	Puffed Kashi	1.60

McCann's

0287	Irish Oatmeal	5.75

Pacific Rice Products

0183	Quick'N Creamy Hot Rice Cereal	3.35

Perky

0252	Crispy Brown Rice	1.89
0253	Crispy Brown Rice (Apple-Cinn)	2.49
0254	Crispy Brown Rice (Carob)	2.19
0251	Nutty Rice	2.19

Quaker

0099	Mother's Oat Bran	1.79

CHEESES

0241	Lifetime Mild Cheddar	2.89
0242	Lifetime Monterey Jack	2.89
0243	Lifetime Mozzarella	2.89
0244	Lifetime Swiss	2.89

CHEWING GUM & Breath Mints

Breath Mints

Certs (.63 oz.)

0339	Cinnamon	.49
0340	Icy Fruit	.49
0337	Peppermint	.49
0338	Spearmint	.49
0341	Wintergreen	.49

Certs Mini-Mints (.5 oz.)

0333	Cherry	.49
0332	Peppermint	.49
0334	Spearmint	.49

Gum

Bubbilicious

0336	Cherry 'N Grape (5 pieces)	.35
0335	Strawberry 'N Cream (5 pieces)	.35

Extra

0153	Bubble Gum (15 sticks)	.70
0152	Peppermint (15 sticks)	.70
0151	Spearmint (15 sticks)	.70

Hubba Bubba

0155	Grape (5 pieces)	.35
0154	Original (5 pieces)	.35

COOKIES

Barbara's Bakery

0065	Animal Cookies (Cinnamon 5 oz.)	1.65
0066	Animal Cookies (Vanilla 5 oz.)	1.65
0164	Chocolate Chip (8 oz.)	2.45
0142	Chocolate-Chocolate Chip (8 oz.)	2.45
0067	Date Walnut (5 oz.)	1.49
0068	French Butter (5 oz.)	1.49
0143	Fruit and Nut (8 oz.)	1.95
0069	Oatmeal Raisin (5 oz.)	1.49
0070	Peanut Butter (5 oz.)	1.49
0071	Toasted Almond (5 oz.)	1.49

Nature's Warehouse

0206	Carob Chip (8oz.)	1.88
0204	Carob Fudge (8oz.)	1.88
0205	Coconut (8oz.)	1.88
0208	Date (8oz.)	1.88
0203	Peanut Butter (8oz.)	1.88
0207	Wheat Free Oat Bran (8oz.)	1.88
0322	Whole Wheat Fig Bars (16 oz.)	2.69

CRACKERS & SNACKS

Blue Heaven

0318	Blue Popcorn (24 oz.)	3.15
0323	White Corn Chips (12 oz.)	2.49

Cel-Ent

0103	Bran Crispbread	1.50

(Continued on next page.)

Gourmet Health Food (Continued)

Little Bear

0278	Blue Corn Chips (5.5 oz.)	1.69
0281	Blue Corn Chips-Nacho Cheese(5.5)	1.69
0279	Blue Corn Chips-No Salt (5.5 oz)	1.69

Pacific Rice Products

0185	Apple Cinnamon Crispy Cakes	1.29
0172	Chili & Cheese Crispy Cakes	1.29
0186	Italian Spice Crispy Cakes	1.29
0184	Natural Crispy Cakes	1.29
0173	Raisin & Spice Crispy Cakes	1.29
0174	Sodium Free Crispy Cakes	1.29

Skinny Haven

Skinny Munchies

0240	Chocolate Fudge (1/2 oz.)	.39
0237	Nacho Cheese (1/2 oz.)	.39
0238	Smokey BBQ (1/2 oz.)	.39
0239	Toasted Onion (1/2 oz.)	.39
0312	Nacho Cheese (4 oz.)	1.69
0313	Smokey BBQ (4 oz.)	1.69
0314	Toasted Onion (4 oz.)	1.69

Sorbee

0316	Raisin & Nut Health Snack	.99

Spicer's Nutriwheat

0189	Apple Cinnamon	1.39
0190	Barbeque	1.39
0188	Chocolate	1.39
0187	Original	1.39
0192	Peanut	1.39
0191	Sour Cream & Onion	1.39

Superior Protein Products

Lite Munchies

0217	Barbeque	.39
0216	Chocolate	.39
0218	Nacho Cheese	.39
0219	Toasted Onion	.39

JAMS/JELLIES/PRESERVES

Clearbrook Farms

Spreads

0199	Michigan Cherry (12oz.)	4.75
0200	Michigan Strawberry (12oz.)	4.75
0201	Oregon Red Raspberry (12oz.)	4.75
0202	Wild Maine Blueberry (12oz.)	4.75

Judy & Toby's

Preserves

0049	Apple Butter	2.50
0048	Apricot	2.75
0014	Boysenberry	2.75
0012	Grape	2.75
0017	Jalepeno	2.75
0015	Orange-Cranberry	2.75
0016	Raspberry	2.75
0013	Strawberry	2.75

Wax Orchards

0124	Chutney: Apricot-Ginger	4.50
0109	Chutney: Cranberry	4.50
0108	Conserve: Apricot-Pineapple	4.50
0294	Raspberry Fanciful	4.50
0295	Strawberry Fanciful	4.50

Fruit Butter

0106	Apple-Raspberry	3.50
0107	Apricot-Apple	3.50
0111	Strawberry-Apple	3.50
0112	Mincemeat	4.50
0125	Sweet & Sour Sauce: Berry	4.50

MEALS

Back to Basics

0139	Beef Mariles	3.30
0136	Beef Romanoff	3.00
0137	Beef Stew	3.00
0135	Chicken Cacciatore	3.00
0140	Chicken Jene	3.00
0138	Shrimp Marinara	3.30
0134	Trout in Lemon Butter Sauce	3.30
0141	Turkey Chili	3.00

Nutra-Choice (Frozen)

0267	Baked Fish With Lemon Sauce	4.79
0266	Chicken Fajitas	4.79
0264	Chicken Salsa	4.79
0274	Chicken Supreme	4.79
0273	Crepe Marco Polo	4.79
0276	Pasta Bolognaise	4.79
0275	Pepper Beef	4.79
0272	Ratatouille With Cheese	4.79
0268	Seafood Mariner	4.79
0263	Sliced Turkey Dinner	4.79
0265	Sweet & Sour Chicken	4.79
0270	Veal Parmigiana	4.79
0271	Vegitarian Lasagna	4.79
0269	Yankee Pot Roast	4.79

NUTS & NUT BUTTERS

0147	Paul's Peanuts (lightly salted)	2.59
0126	Paul's Peanuts (salt-free)	2.59

Roaster-Fresh

0229	Creamy Almond Butter	4.75
0230	Crunchy Almond Butter	4.75
0209	Creamy Peanut Butter - No Salt	4.75
0210	Crunchy Peanut Butter - No Salt	4.75

Sorbee

0316	Raisin & Nut Mix	.99

SALAD DRESSINGS & OILS

Avoco

0162	Avocado Oil (12.7 oz.)	5.25

Cook's Classics

Bottled Dressings & Marinades

0284	Caesar	2.99
0282	Garlic Lovers	2.99
0283	Tarchon French Herb	2.99

Measured Meals

Dressings (20 packets each)

0194	Bleu Cheese	2.50
0193	Chef	2.50
0196	Creamy Garlic	2.50
0195	Italian	2.50

Sweet Lite

0064	Dietetic Mayonnaise	2.49

SAUCES

Allied Old English

Hot Cha Cha Sauces

0227	Chunky BBQ (16 oz.)	3.09
0228	Chunky Taco (16 oz.)	3.09
0226	Texas Salsa-Hot (12 oz.)	2.48
0225	Texas Salsa-Medium (12 oz.)	2.48
0224	Texas Salsa-Mild (12 oz.)	2.48

Ci-Bella

0215	Pasta Sauce-Low Salt	3.25
0234	Pasta Sauce-No Salt	3.25

Cook's Classics

0286	Garlic Lovers Herb Sauce	3.49

SOUPS

0232	Beef Lentil	2.50
0233	Chicken Gumbo	2.50

SPICES

Arizona Products

0078	Herbal Spice Mix	4.00
0076	Mustard	4.00
0077	Mustard-Cajun	4.00
0079	Southwest Mix	4.00

Bakon

0158	Barbecue Flavor (1.65 oz.)	1.79
0156	Hickory Style (2 oz.)	1.29
0157	Sour Cream/Chives (1.75 oz.)	1.79

North American Healthlabs

0007	Life Salt	3.50

Parsley Patch Seasonings

0040	All Purpose Blend	2.05
0041	Garlic Saltless	2.29
0044	Italian Blend	2.05
0043	Lemon Pepper	2.29
0045	Mexican Blend	2.05
0046	Oriental Blend	2.29
0047	Set of Six Blends	13.00

Wicker's

0220	Low Salt Hickory BBQ Marinade	2.75

SUPPLEMENTS

0104	Fiber Excel (16oz.)	9.95
0105	Fiber Excel (18 packets)	7.95
0327	Metamucil (Regular-cannister)	10.99
0328	Metamucil (Orange-cannister)	10.99
0329	Metamucil (Lem-Lime-packets)	4.99
0330	Metamucil (Orange-packets)	4.99

SWEETENERS

Searle (Nutrasweet)

0160	Equal Packets (100)	3.99
0161	Equal Packets (200)	6.99
0159	Equal Tablets (100)	2.29

Sugar Twin

0320	Brown Sugar Twin (1.7 oz. box)	1.29
0319	White Sugar Twin (2.85 oz. box)	1.19

Sweet Lite

0083	Fructose-Granulated (8oz.)	2.39
0110	Fructose-Liquid (11.25 oz.)	2.39

Wax Orchards

0122	Fruit Sweet	3.50

SYRUPS

Cary's

0057	Maple Syrup	1.39

Wax Orchards

0292	Blueberry	3.50
0293	Cherry	3.50
0291	Raspberry	3.50
0290	Strawberry	3.50

TOPPINGS

0081	Fudge Sweet	5.00

VEGETABLES

Just Tomatoes

0197	Just Tomatoes (1oz.)	1.99

Little Bear

0277	Refried Beans	1.37

FOOD SAMPLERS

0165	**Food Sampler #1**	25.00
0166	**Food Sampler #2**	25.00
0235	**Food Sampler #3**	25.00
0345	**Food Sampler #4**	25.00

If you can't find what you need on this list, please give us a call and we'll try to locate it for you.

1-800-972-2323

(Nationwide)

1-800-336-1222

(California)

An Open Letter to the SugarFree Center from Emily Dickinson



As former librarians and long-time admirers of Ms. Dickinson's poetry, we regret giving offense. We were just making a little joke and we assumed that everyone was familiar with the original poem. We apologize and herewith retract and present the true quotation:

Amherst, Massachusetts

My Dear SugarFree People:

It has come to my attention that you misquoted me in your latest Health-O-Gram. I definitely did not say, "There is no frigate like a H-O-G to take you lands away!" In fact it is my considered opinion that travel on such a vehicle would be an extremely slow and uncomfortable means of transportation. I would never advise it to anyone. I, therefore, request an immediate retraction. Please be advised that my actual quote used the word, "book" rather than H-O-G.

Yours sincerely,

Emily Dickinson, Poet and Recluse

P.S. I do want to mention, however, that I have a diabetic cousin living in rural Vermont who uses your mail order service and finds it eminently satisfactory. He also enjoyes your publication although he says he sometimes doesn't understand what you're talking about. (I often get the same complaint.)

THERE IS NO FRIGATE LIKE A BOOK TO TAKE YOU LANDS AWAY

That's why we make such a wide range of books available to you. We want you to travel to such golden lands as *The Land of Understanding Diabetes* and *The Land of Good Health* and *The Land of Happiness and Good Times.* So hop on board these frigates. Unlike what Emily Dickinson said about H-O-G travel, you'll find this means of transportation extremely fast and comfortable.

Travelers' Aids

Special Price

Peripatetic Diabetic *by June Biermann and Barbara Toohey. 252p.*

Peripatetic means traveling around. We like to say that the *Peripatetic Diabetic* is one who gets around in every sense of the word. This book tells about traveling at home and abroad at ski resorts and on golf courses—going whenever and wherever and doing whatever you want to as a diabetic.

But more than that it is our first and most personal diabetes book, the one that tells how you feel when you are first diagnosed, how to overcome that initial fear and despair and move on to a more joyful, exciting and healthy life than ever before. This edition was recently up-dated with a section called "The Peripatetic II," to bring you into the contemporary world of diabetes therapy. But the original book with all of its crises and confusions is still there exactly as it was written—and lived.

In honor of this special travel issue we're going to encourage you all to read the *Peripatetic Diabetic* by offering a special discount—**$2.00 off the regular $7.95 price. Offer good until June's Birthday, July 2.**

9003 Peripatetic Diabetic (special price) ___5.95

Oriental Cooking for the Diabetic *by Dorothy Revell. 160p.*

At last a dietitian has opened up Oriental cooking to diabetics. Includes all the old favorites of the Chinese and Japanese cuisines---egg flower and miso soups, egg foo yong, tempura, sweet and sour pork,etc. Many recipes using the stir fry method. The exchange values of all special Oriental ingredients are given, even quail eggs and whale meat. There is a group of recipes for those who are on a sodium-restricted diet. Includes calories and exchanges for each dish.

#9026 Oriental Cooking for the Diabetic___9.95

Special Diet Foreign Phrase Book *by Helen Jacobson. 293p.*

For foreign travel you use this book to explain what you want in Spanish, French, German or Italian. It covers all diets---diabetic, low-sodium, lowcholesterol and fat, ulcer, bland, soft and low residue. The print is large enough so that you can point to the phrase and let the waiter or Maitre D' read it. Includes medical emergency phrases and everything else you need to make your trip healthful and funful.

#9062 Special Diet Foreign Phrase Book___10.95

International Menu Diabetic Cookbook *by Betty Marks and Lucille Schechter. 364p.*

Betty Marks (diabetic) and Lucille Schechter make foreign cooking possible for diabetics. They present an amazing variety of exotic but easily-prepared dishes that are not high in fat. 300 recipes from 18 countries along with 73 menu suggestions. Includes exchanges, sources of foreign ingredients, and helpful hints.

#9080 International Menu Diabetic Cookbook___14.95



Basic Books on Diabetes

Blood Glucose Monitoring. *83p.*

Written by 14 leading diabetes experts, this book is a perfect introduction or up-date, not just on blood glucose monitoring, but on every aspect of diabetes self-care. Topics include: Types I & II Diabetes, Self-Monitoring, Control and Health, Meal Planning, Medications, Hypoglycemia, Complications, Sick Days, Traveling, and Psychological Impact. If you haven't time to read a Great Diabetes Tome, this slender volume will give you the information you need to take charge of your diabetes.

#9039 Blood Glucose Monitoring___4.00

Diabetes-Glucograf Method *by Richard K. Bernstein, M.D. 294p.*

Dr. Bernstein, a Type I diabetic for 40 years, is known as "the tartar of tight control." His scientific method requires 6 self-tests a day, multiple injections of insulin, and a high protein diet. This pioneer book is of great value to Type I diabetics who are tired of their bouncing blood sugars and are ready to take charge of their diabetes to prevent complications and to feel their best 24-hours a day.

#9055 Diabetes-Glucograf Method___8.95

Diabetes; Reach for Health & Freedom *by Dorothea F. Sims, editor. 171p.*

Doro Sims is a leader in diabetes education and is herself an inspiring role model with 41 year's experience as a diabetic. She edited this self-care manual written by a team of health professionals. It emphasizes options rather than rules. A large portion of the book is devoted exclusively to the problems of Type II diabetics. Compassionate and supportive.

#9054 Diabetes; Reach for Health (1984)___9.95

Diabetes-Self-Care Method *by Charles Peterson, M.D. and Lois Jovanovic, M.D. 129 pages.*

A state-of-the-art manual which focuses on normalizing blood sugar through self-testing and insulin adjustment. The physicians who wrote this book believe most complications can be avoided. There is a chart telling which are preventable and which are reversible. A very practical and encouraging book by two of the foremost endocrinologists of the U.S.

#9064 Diabetes-Self-Care Method___7.95

Diabetic Dr. Looks at Diabetes *by Peter Lodewick, M.D. 232p.*

In this complete manual Dr. Lodewick is always optimistic and understanding and never preachy. He gives you the very latest in diabetes therapy---his own therapy. One look at his happy, healthy, handsome face on the cover and you'll know it works.

#9089 Diabetic Dr. Looks at Diabetes (1986)___3.95

Diabetic Woman *by Lois Jovanovic, M.D., June Biermann and Barbara Toohey.* 246 p

The first book to focus on how women can best deal with diabetes at different stages of their lives, both therapeudically and emotionally. Women have always felt more alone with diabetes than men, because of the distinctive complexity of their diabetes-related problems. There is support and understanding here as well as realistic coping methods for the major and minor concerns in the lives of today's women. Special chapter for family members, too.

#9095 The Diabetic Woman___15.95

Diabetic's Book *by June Biermann and Barbara Toohey. 254p.*

This has become the classic first book to read when you're diagnosed diabetic. It's also a good update for long-term and born-again diabetics. Truly makes you feel **you can do it** and then shows you how.

#9002 Diabetic's Book___9.95

The Other Diabetes *by Dorothea Sims and Ethan Sims, M.D. 28p.*

Seven articles by experts on Type II (non-insulin-taking) diabetes, edited by the Simses and reprinted from *Diabetes Forecast.* The Simses have a special concern for those of you who suffer most from "our overfed and sedentary American lifestyle and are often blamed for your disorder, which is now seen as anything but mild."

#9027 The Other Diabetes___1.00

Emotional Health & Stress

Diabetes; Caring for your Emotions *by Jerry Edelwich and Archie Brodsky. 276p.*

This book explores the deepest feelings of diabetics. It is told in the words of the people who lived through them. Outstanding chapters on sexuality, conflicts with health professionals, and family dynamics. Type II diabetics, who often get short shrift, are given as much attention as Type I's.

#9090 Diabetes; Caring for your Emotions___10.95

Feeling Good *by David Burns, M.D. 416p*

Psychiatrist David Burns shows how by changing the way you think you can alter your moods and get rid of low self-esteem, anger, depression, pessimism, lethargy, and the other "black holes" in your life and become rich in self-assurance, strength, and accomplishment.

#9014 Feeling Good___4..95

Self-Esteem Passport *by Michael Drawetz.* 28p.

Save a trip to the psychiatrist! This tool for changing your life is a step-by-step guide to raising your self-confidence. You rediscover your own skills, accomplishments and positive qualities. Easy to use.

#7007 Self-Esteem Passport 2.95

NEW BOOK

Type E Woman *by Harriet B. Braiker, Ph.D., 288p.*

The Type E woman is trying to be Everything to Everybody and neglecting herself (and her diabetes) in the process. Dr. Braiker shows you how to *first* take care of yourself so you can *then* take care of others. This book helps you gain control of your life. All you have to lose is your exhaustion—and your guilt! *Highly recommended.*

#9097 Type E Woman___$4.50

Exercise and Fitness

Fit or Fat? *by Covert Bailey. 107p.*

The section of this book on fitness presents a 12-minute-a-day aerobic exercise program that actually changes your metabolism, causing you to burn more calories even when you're sitting still or sleeping. Includes choosing an aerobic exercise, how to take an exercise pulse, how hard to exercise and other important topics. Even has a 12-month logbook.

#9015 Fit or Fat?___5.95

NEW BOOK

Racewalking for Fun and Fitness *by John Gray. 168p.*

Running is falling out of favor because of the damage it does to knees and and other vulnerable joints. Therefore, our recommendation now is to run as slowly as you can and walk as fast as you can at the same time. In other words, do race-walking, which is a recognized sport in the Olympics and the best way to turn walking into a genuine aerobic exercise The author, a former marathon runner, who now prefers racewalking, has walked 60,000 miles in the last 36 years, but he"s not asking you to do that. This book explains exactly how to do it and inspires you to action. It's a wiggling motion that should be a great reducer and toner, too. It's also a lot of fun. The first time Barbara tried it, she found herself in a race at a track meet with hundreds of people looking on. Even though she didn't know what she was doing, she took second in her age group. (Note: there were only three people in her age group.)

#9104 Racewalking___7.95

Parents and Children

NEW BOOK

Children with Diabetes *by Linda Siminerios and Jean Betschart.* 76p.

By two experienced and dedicated diabetes nurse educators of the Children's Hospital of Pittsburg, this manual for parents is concise yet complete. It covers treatment (insulin, diet, exercise, testing), emergencies (hypoglycemia, hyperglycemia, diabetes coma, sick days), and problems special to babies, preschoolers, school-age children and adolescents. Gives parents insights into emotional problems and suggestions for the entire family. Published by the American Diabetes Assn.

#9102 Children With Diabetes___$7.95

Diabetes-Guide for Parents *by Lee Ducat and Sherry Suib Cohen. 253p.*

The full subtitle of this book is "A New and Complete Guide to Healthier Living for Parents, Children and Young Adults Who Have Insulin-Dependent Diabetes." This is a real coping manual and it is outstanding on the emotional aspects of diabetes. Lee Ducat has a diabetic son and is the founder of the Juvenile Diabetes Foundation.

#9040 Diabetes-Guide for Parents___7.95

Kids, Food and Diabetes *by Gloria Loring. 391p.*

Because of her diabetic son, TV star Gloria Loring was inspired to write an exceptional book that only a sensitive, caring mother could. It's packed with recipes that kids willlove, sound nutritional information, and, what's best of all, lots of Gloria's personal help in coping with the challenges of raising a diabetic child while keeping the dynamics of good family relationships intact. This book is like having your own support group right there on your shelf at home.

#9085 Kids, Food, and Diabetes___11.95

NEW BOOK

Sugar Isn't Everything *by Willo Davis Roberts.* 190p.

This is the best and most needed diabetes book June has read this year. Its subtitle is " A Support Book, in Fiction Form, for the Young Diabetic." A professional children's book writer, who herself became diabetic as an adult, turned her own new knowledge and experience into a factually sound therapeutically up-to-date novel with an eleven-year-old girl as heroine. Amy develops diabetes, struggles with it, learns how to handle it and eventually accepts it. Engrossing and true-to-life. Every young diabetic can relate to this novel and learn more and feel better for having read it. Good for parents, too.

#9099 Sugar Isn't Everything ___ $12.95

Pregnancy

Diabetic Woman *by Lois Jovanovic, M.D., June Biermann and Barbara Toohey. 246p.*

Please see the description of this book on page 16.

#9095 The Diabetic Woman___15.95

Gestational Diabetes *by Marion Franz, Nancy Cooper and Lucy Mullen. 24 p.*

This booklet is for women who develop high blood sugars only during their pregnancies. It gives guidelines for a safe pregnancy and a healthy baby. The advice is also sound for pregnant diabetics.

#9033 Gestational Diabetes___3.00



Joslin Guide for Pregnant Women *by the Pregnancy Clinic of the Joslin Center. 147p.*

This clearly written "labor of love" includes everything learned at the nation's first clinic to care for the distinctive needs of pregnant women with diabetes. It's a must! Read it for a happy ending!

#9020 Joslin Guide for Pregnant Women___24.50

NEW BOOK

Nutrition and Motherhood *by Roslyn B. Alfin-Slater, Lilla Aftergood, and Judith Ashley-Mills.* 38p.

Very thorough and up-to-date handbook on how to eat and <u>not</u> eat during pregnancy. Not especially written for diabetic women, but applies to them maybe even more than to non-diabetics. Particularly helpful for protein, vitamins and minerals, problems such as nausea and heartburn, lactation nutrition, pre and postnatal exercise. The three writers are authorities in the field, and the publisher is a diabetic.

#9105 Nutrition and Motherhood___3.95

Weight Loss

Beyond Diet *by Martin Katahn. 352p.*

A 28-day program that causes you to lose weight at the rate of 3 pounds a week by increasing whole body exercise such as walking, jogging, cycling or rebounding. Good tips on eating slim. Includes a pocket-size calorie and energy expenditure calculator.

#9057 Beyond Diet___15.95

Fit or Fat? *by Covert Bailey. 107p.*

For helping you with wieght loss or for leading you into lifetime fitness, there's no one to match Covert Bailey. Bailey presents a 12-minute-a-day aerobic exercise program that actually changes your metabolism, causing you to burn more calories even when you're sitting still or sleeping. Use in combination with Bailey's **Fit or fat Target Diet** and **Fit or Fat Target Recipes.**

#9015 Fit or Fat?___5.95

Free to Be Thin; There's More to Being Thin Than Being Thin *by Marie Chapian and Neva Coyle. 179p,170p.*

Written by the head of the Christian Center for Counseling and Fitness and the Director of Overeater's Victorious, these books rely on God and prayer for a successful weight loss program.

Our Medical Advisor, Diana Guthrie, says, "I found their weight control advice sensible, sound, non-fadish, and straightforward. I liked the phrase 'First face God with the problem, then face the problem with God.'"

#9034 Free to be Thin___5.95

#9035 There's More to Being Thin Than Being Thin___5.95



Cookbooks & Exchanges

ADA Exchange Lists *24p.*

Food lists created by the American Diabetes and Dietetic Associations to help diabetics control calories and eat balanced diets. A dietitian can tailor the lists to your needs. Since many cook books still use the 1976 exchanges, you'll want both.

#9061 ADA Exchange Lists (1976)___1.00

#9091 ADA Exchange Lists (1986)___1.75

ADA Family Cookbooks. Vols. I, II, and III. 448p. and 434p.

These three cookbooks are healthy eating guides for the entire family, not just for diabetics. Volume I has 250 recipes, information on nutrition, meal planning, exchanges, dining out and fast food. Volume II has 206 recipes, four chapters on fighting fat, an exercise program, ethnic dishes and exchanges plus a section on fiber. Volume III, the newest, focuses on variety and contemporarily popular dishes such as tortilla soup, fajitas, and jambalya. Features quick-cooking tips, and microwaving method is included when appropriate. All recipes are reduced in fat, are low sodium and limited to 1/2 teaspoon sugar.

#9059 ADA Family Cookbook V. I ___16.95

#9060 ADA Family Cookbook V.II___16.95

#0958 ADA Family Bookbook V. III___16.95

ADA Holiday Cookbook *by Betty Wedman. 219p* .A collection of marvelous low sugar, low salt, low fat recipes for traditional holiday favorites like roast turkey, eggnog, fruit-cake, pumpkin treats, challah, and gefilte fish. Also many appealing dishes that you can enjoy all year long, like pump-kin pancakes, popovers, etc. Includes tempting vegetarian creations. Exchanges given from the 1986 Lists.

#9084 ADA Holiday Cookbook___14.95

Art of Cooking for the Diabetic *by Katharine Middleton and Mary Hess.. 372p.*

An excellent choice for your first diabetes cookbook.. This total food guide is by a diabetic diet counselor and a nutrition educator with diabetes in the family. 300 recipes, low in sugar, saturated fat and sodium.

#9009 Art of Cooking for the Diabetic___11.95

Cake Mix Magic with Batter-Lite *by Jeanne Jones.36p.*

These 29 elegant cake recipes with Batter-Lite cake mixes include such special occasion treats as Banana Cream Cake, Lemon-Pineapple Up-side Down Cake, Chocolate Fudge Cake and Brownies, all with exchanges, calories, and cholesterol content.

#9017 Cake Mix Magic with Batter-Lite___1.00

Calculating Cook; More Calculated Cooking; Diet for a Happy Heart; Fabulous High Fiber Diet ; Secrets of Saltfree Cooking *by Jeanne Jones. 192p.ea.*

Written by the famous cook and diabetic who specializes in good food that's good for you, these 4 cookbooks make dining a joy. All recipes include exchanges.

#9010 Calculating Cook_____6.95

#9025 More Calculated Cooking____6.95

#9012 Diet for a Happy Heart_____8.95

#9013 Fabulous High Fiber Diet____7.95

#9029 Secrets of Saltfree Cooking__7.95

Carbohydrate Guide to Brand Names & Basic Foods *by Barbara Kraus. 146p.*

According to Ron, Type I diabetics find it more effective to count their carbohydrates rather than calories. This handy, inexpensive portable little paperback will help you do it

#9087 Carbohydrate Guide___2.50

Creative Cooking for Renal Diabetic Diets *by the Cleveland Clinic Foundation. 74p.*

This book is by a noted renal dietitian, has 187 recipes for everyday use and for holidays and entertaining. Some recipes were submitted by renal patients. Large print and easy-to-follow directions. All recipes modified for sodium, potassium, protein, carbohydrate and fluid control. Besides the renal diabetic exchanges, includes a complete nutrient analysis of recipes.

#9096 Renal Diabetic Diet___11.95

Diabetes Control and the Kosher Diet *by Ad Kahn . 170p.*

The only book about managing diabetes in accordance with orthodox Jewish religious practices. Besides three chapters of recipes there are lower fat and calorie adaptations of traditional dishes such as chopped liver and matzo balls. Includes Kosher exchange lists.

#9078 Diabetes Control and the Kosher Diet___9.95

Diabetes; A Practical New Guide to Healthy Living; HCF Exchanges *by James Anderson, M.D. 210p and 18p.*

These two books explain how to restructure your diet with a fiber and low fat base. Dr. Anderson has published many studies showing that fiber helps blood sugar control. His diet , high carbohydrate and fiber and low fat (HCF), can lower insulin requirements and eliminate the need for pills in Type II diabetics. *The **HCF Exchanges*** is an expanded list of the 8 exchange groups used in his plan.

#9018 Diabetes; Guide to Healty Living ___ 4.50
#9063 HCF Exchanges___2.00

NEW BOOK

Diabetic Candy, Cookie & Dessert Cookbook *by Mary Jane Finsand.* 160p.

Chemist-nutritionist Finsand gives you over 200 recipes using sugar replacements. A treasure of thrills for dessertees. Even tells you how to make ice cream cones. 12 pie recipes, 17 cakes recipes , 44 cookie recipes. Don't overdo! (But then don't underdo either!)

#9022 Diabetic Candy, Cookie, etc. Cookbook___7.95

Diabetic Chocolate Cookbook *by Mary Finsand 160p.*

The luxury of chocolate in candies, cookies, cakes, pies and puddings is here made possible for diabetics. Exchanges and calories are provided for each recipe. Includes Ron's tips to make sure you get perfect results.

#9066 Diabetic Chocolate Cookbook___7.95

NEW BOOK

Diabetic High Fiber Cookbook *by Mary Jane Finsand.* 160p.

A first! High fiber cookery just for diabetics and their families. Covers the entire menu. Lots of vegetable recipes, soups and stews and casseroles. An entire chapter on making sausages from all different countries, many with bran flakes or corn meal. 250 recipes, all with calories and exchanges.

#9021 Diabetic High Fiber Cookbook___7.95

Diabetic's Brand-Name Food Exchange Handbook *by Andrea Barrett . 176p.*

Calories and exchanges for 3000 foods from four hundred manufacturers plus 10 fast-food menus. Vital for those with fast-lane eating habits.

#9050 Diabetic's Brand-Name Food Exchange Hdbk.___17.95

Exchanges for All Occasions *by Marion Franz. 249p.*

Revised in 1987, this manual lists hundreds of foods not on the ADA Exchanges.Covers high fiber, vegetarian, and ethnic diets. Essential for flexibility in dining.

#9041 Exchanges for all Occasions___8.95

Fit or Fat Target Diet; Fit or Fat Target Recipes *by Covert Bailey. 138p. and 168p.*

These are the follow-up books for Bailey's fitness and weight-loss plan explained in **Fit or Fat ?** The first is an eating plan emphasizing losing body fat. The second is a recipe collection for delicious, low fat dishes ideal for weight control for Type II diabetics.

#9067 Fit or Fat Target Diet_____5.95
#9076 Fit or Fat Target Recipes___5.95

Food Values of Portions Commonly Used *by Jean Pennington and Helen Church. 256p.*

The 14th edition (1985) of the Bible of nutrition. Gives complete nutrient content of all foods--and we do mean all. Essential for dietitians and people on special diets.

#9074 Food Values of Portions Commonly Used___8.95

NEW BOOK

Gourmet Recipes for Diabetics *by Billie Little & Victor Ettinger, M.D. 223 p.*

Just what the title says. 147 recipes for the adventurous by an expert cook and an epicurian endocrinologist. Their motto: Stay on the diet, but Enjoy! Enjoy!!

#9098 Gourmet Recipes for Diabetics___8.95

Guiltless Gourmet *by Judy Gilliard & J.Kirkpatrick. 46p.*

By a dietitian and a diabetic trained in classic French cuisine, this book has sophisticated recipes from all over the world. All are computer analyzed for the diabetic diet. All are low in fat, cholesterol, sugar and calories.

#9053 Guiltless Gourmet___8.95

Healthy Food Choices *by American Diabetes Assn. and American Dietetic Assn.*

An introductory poster (11" x 17") to help you get started on an ideal meal plan by making the right food choices in the right amounts. Folds into a booklet.

#9088 Healthy Food Choices___.50

Microwaving on a Diet; Microwaving Light and Healthy *by Barbara Methven. 160p. and 159p.*

A microwave oven is a dieter's—and a *diabetic's*—best friend, making cooking fast and easy. Both books have mouthwatering illustrations and lipsmacking recipes and both explain menu planning and include recipes from appetizers to desserts, with calories, sodium, cholesterol and exchanges.

#9106 Microwaving on a Diet___14.95
#9107 Microwaving Light and Healthy___14.95

New Laurel's Kitchen *by Laurel Robertson, Carol Flinders, and Brian Ruppenthal. 511p.*

Laurel's Kitchen has always been our favorite vegetarian cookbook. The new *Laurel* has the same inspiring philosophy and new recipes that open vistas of dining joy and health. Tells how to increase fiber and cut back on fat. Sections on cooking for children, elders, pregnant women, and athletes.

#9086 New Laurel's Kitchen (1986)___15.95

Opening the Door to Good Nutrition *by Marion Franz , B. Hedding and Gayle Leitch. 186p.*

Tells you your ideal weight and the number of calories to eat to achieve it. Information on menu-planning, fiber, fat, cholesterol, vitamins and minerals. An excellent guide.

#9082 Opening the Door to Good Nutrition___7.95

NEW BOOK

Pass the Pepper, Please! *by Diane Reader & Marion Franz. 66 p.*

Hypertension is twice as common in diabetics, so they especially need to reduce sodium . This book tells how to eliminate salt without tears and almost without effort.

#9103 Pass the Pepper, Please!___$3.95

Change of Menu

Catering to your good health

Formerly Menu Monthly

All menu plans are designed to latest ADA guidelines using the 1986 Exchange Lists and have ingredient lists for one or two or family style.

Change of Menu Monthly Supplement. *12 issues*

Each issue has 8 - 10 original recipes and complete menus for lunch, dinner, and snacks on each calorie level. Often with a special theme such as Thanksgiving or Easter.

#9070 Subscription to Change of Menu___14.00

Basic Diabetic Menu Plan. *83p.*

8 weeks of 3 meals and snacks for 1000, 1200, 1800, and 2400 calorie low fat/high fiber diets. All menus are planned and all recipes are given. There's even a shopping list and directions for using leftovers. Easy cooking and varied meals. The next best thing to having a consultation with a dietitian!

#9092 Menu Monthly Basic Diabetic Menu Plan ___29.95

Low Sodium, Low Cholesterol Menu Plan. *48p.*

Does everything the Basic Diabetic Menu Plan does, but is designed to also help you avoid salt and cholesterol. 4 weeks of menus.

#9071 Low Sodium, Low Cholesterol Menu Plan___19.95

Diabetic Cooking for 1 or 2, Vols. I & II 123p., 100p.

Over 200 recipes for only one or two portions at a time. A genuine breakthrough in cookbooks for diabetics since more and more households are now composed of one or two people.

#9093 Diabetic Cooking for One or Two (Vol. I)___12.95

9101 Diabetic Cooking for One or Two (Vol. II)___12.95

Potluck 1 for Diabetics and their Families. *78p.*

A cookbook with 200+ recipes and 100 menus on the same calorie levels as the basic guides. Easy and appealing to all tastes; especially great desserts!

#9072 Potluck I___16.95

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T'AI CHI CH'UAN INVOLVES FULL BODY MOVEMENT

elevates the heart rate and improves cardiovascular functions. The resistive exercises stress specific muscle groups which help tone the body and improve weight distribution. T'AI CHI CH'UAN is an excellent way to achieve more flexibility in an easy exercise that takes only minutes a day.

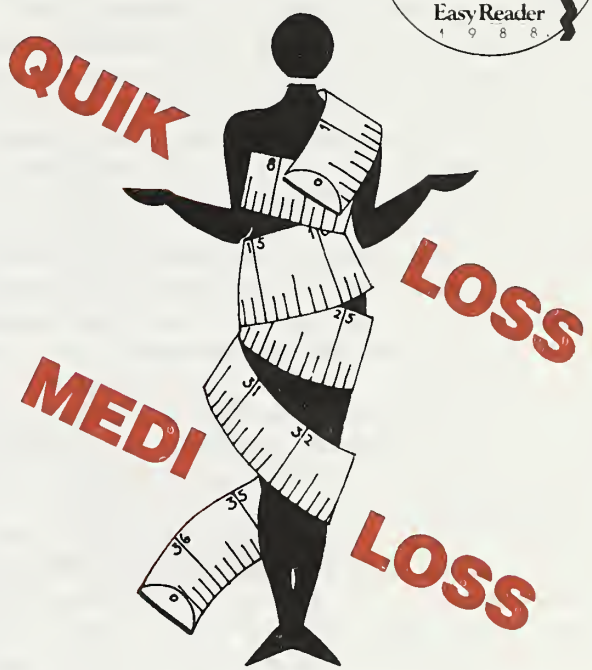
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Small Indulgences



Another nice feature of travel is that you sometimes get a chance to glimpse a little daytime television. When we were in San Francisco we saw an interview with futurist, Faith Popcorn. (Yes, that's her real name!) She's an industrial consultant who tells companies what the trends of the future are so they can make the appropriate business decisions.

One of the trends she predicted was that people would start giving themselves "small indulgences." She said that people can no longer afford hugely expensive cars or homes or the most luxurious vacations, but they can indulge themselves with, for example, the best shampoo or after-shave lotion. In food this trend is especially prevalent. People who can't afford to dine at the Quilted Giraffe in New York or Masa's in San Francisco or Rex in Los Angeles (who can?!) can still enjoy the very best jam or cookie or blue corn chip or oatmeal.

That's where we come in. We prowl food shows and luxury boutiques for the most delicious treats. But we have additional requirements: they must also be appropriate for the diabetic diet and have such additional health benefits as high fiber, low sodium, and low fat. Fortunately, more and more of what we call Gourmet Health Foods appear every day and we promptly snap them up for the SugarFree Centers.

Fashion columnist, Carrie Donovan, advises to "always buy the best quality for the price you can afford. That's called investment dressing." This holds true when it comes to what you eat—and especially true for diabetics. Since you must restrict how much you eat, you should never stint on quality. Food is called "the most intimate consumer product" since it actually becomes a part of your body. That's why we feel that the best is just barely good enough for you—and for us!

Cocooning

Another Popcorn prediction is that we'll all be doing more cocooning. This doesn't mean splashing around in a pool for rejuvination as in the movie. It means holing up at home doing things like watching movies and plays on cable or VCR, reading and cooking. This trend is partially a result of how hard we all work these days so we don't feel like going out at night. It also probably has something to do with crime in the streets. We find that while we still love to travel, when we're not traveling we do tend to cocoon at home—and that includes cooking. That's why a lot of our "small indulgences" are baking mixes and ingredients that make wonderful dishes. And that's why we have so many cookbooks for diabetics.

Alix, our director of purchasing, who sees orders for all these products and books flowing across her desk, once asked , "Do your people really do that much cooking?" (She calls you "our people" because she thinks of you that way and so do we.) At any rate, we told Alix we hope our people cook and referred her to what we wrote in the *Diabetic's Total Health Book*:

Cooking not only provides the additive-free and nutrient-full food you need to maintain optimum health and optimum diabetes control, but it can be a mental health booster and stress reducer in itself. John Irving, in The World According to Garp, *has his lead character, Garp, who is a writer, say "If you're careful, if you use good ingredients and you don't take any short cuts, then you can usually cook something very good. Sometimes it is the only worthwhile product you can salvage from a day: what you eat. With writing, I find, you can have all the right ingredients, give plenty of time and care and still get nothing. Also true of love. Cooking, therefore, keeps a person who tries hard sane."*

Also true of diabetes, you could say. How many times have you tried hard, used all the principles of good diabetes care, and come up with a 250 blood sugar? Cooking—if you try hard—can keep you sane as well as physically healthy. It can keep you sane, that is, if you don't go about it in a way that makes you insane. If you attack your cooking in a hurried frenzy, trying to get it over with as quickly as possible, then you're going to be building up stresses that even the most perfect of diets will have trouble counteracting.

The mere fact of working quietly, carefully concentrating on what you're doing (no blaring radio or TV) makes the process of cooking a creative and enjoyable experience.

So fill up your shopping basket with small indulgences. Meg Gaekle, our dietitian and manager of the South Bay Center, has calculated all the exchanges for you. See pp. 43-44. Then cocoon and cook until it's time for your next trip. And while you're on your travels, please keep your eye out for more small indulgences that we should make available at the SugarFree Center. We promise to snap them up , too.

SUGARFREE SAMPLERS

As you look over the tempting array of Small Indulgences you may be so overwhelmed with the possibilities that you have trouble making up your mind. To simplify things for you, we've created four SugarFree Samplers. These will introduce you to some of our most popular products—and at the same time save you 10% of what these would cost if you ordered them individually. Note: Sampler #4 contains Gourmet Health Foods offered for the first time in this *H-O-G*.

0165 Sampler #1—$25.00

(Fudge Sweet, Puffed Kashi, Maple Flavor Syrup, Bran Crisp Bread, Franconia Chocolate Bar, Strawberry Preserves, Oatmeal Raisin Cookies, Apricot-Pineapple Conserve, Garlic Saltless, Mayonnaise, Caramel Nougats.)

#0166 Sampler #2—$25.00

(Franconia Truffles, Chocolate Chip Cookies, Boysenberry Preserves, Oat Bran, Cake Mix, Frosting, All Purpose Spice Blend, Arizona Mustard, Back to Basics Meat Entree, Apple Butter, Kashi.)

#0235 Sampler #3—$25.00

(Corn Flakes, Apple-Cinnamon Crispy Cake, Oregon Red Raspberry Spread, Creamy Peanut Butter, Measured Meals Salad Dressing, Back to Basics Chicken Entree, Mild Salsa, Just Tomatoes, Coconut Cookies., BBQ Marinade, Lite Munchies.)

#0345 Sampler #4—$25.00

(Cook's Classic Dressing, Fig Bars, Fruit Leather, Perky Cereal, Blue Heaven Pancake Mix, Wax Orchsrd Syrup, Blue Corn Chips, Refried Beans, Raisins, Jalapeño Jam, Skinny Munchies, Irish Oatmeal.)

In the event that a product in a Sampler is out-of-stock or discontinued by the manufacturer, we will substitute something of equal or greater value and equal or greater scrumptiousness so you won't be disappointed.



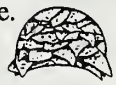
NEW

Song Sung Blue

It's Corny, but it's beautiful!

One of the meter companies recently switched its packaging color to blue. This was because a color consultant told them that psychologically the color blue instills people with trust. Maybe that's one of the reasons we all love our new blue corn products so much. Another reason is blue corn's ancient and honorable heritage. It has been a staple of the Navajo and Hopi Indians of the Southwest for centuries. A third reason is its nutritional value. It is 21% higher in protein than yellow, has 7% less fat, more minerals, and a better amino acid profile. It's particularly high in lysine. The baking powder used in the mixes has no aluminum.

But the most important reason for our love of blue corn is its unique sweet, nutty taste—a whole new flavor. We're also foodies who like to be in on the latest dining trends and the latest California trend is Southwestern. Blue Corn is the epitome of Southwestern cuisine.



#0278 Blue Corn Chips (5.5 oz.)—$1.69
#0279 Blue Corn Chips-No Salt (5.5 oz.)—$1.69
#0281 Blue Corn Chips-Nacho Flavor (5.5oz.)—$1.69

These chips are thinner and crispier than regular corn chips so they absorb 10% less oil in cooking. All three varieties are crisp, light, and delicious. Dip them in one of our **Hot Cha Cha Texas Salsas** or make nachos by melting some of our **Lifetime Monterey Jack Cheese** over them. Also from the high plains of New Mexico comes a nutritious, flavorful white corn chip. We offer these for variety and so you can enliven your buffet or snack tays with two new chip colors.

#0323 White Corn Chips (12 oz.)___$2.49



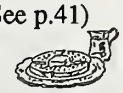
#0317 Blue Corn Muffin Mix —$2.60

Quick and easy, to prepare these make an ideal breakfast or an excitingly different bread exchange for lunch or dinner. Make them even livelier with the addition of bits of jalapeño pepper and/or grains of corn. Exchanges: 1 muffin = 1 1/2 starch, 2 fat, 215 calories (using skim milk)



#0318 Blue Corn Popcorn—$3.15

The most elegant popcorn you'll ever meet! Indigo corn that pops up into a delicate, silvery, deep blue-flecked perfection. Great for surprising and delighting your party guests. Lightly salt with our **Life Salt**. It's so flavorful many people eat it without salt or butter. We use a touch of Life Salt. (See p.41)



0321 Blue Corn Pancake and Waffle Mix — $3.39

Your week will go better if you make these for Sunday breakfast or a Sunday evening supper. Your whole house will be perfumed with an intoxicating aroma of blue corn. Serve with our **Cary's Syrup** or one of our new **Wax Orchards Fruit Syrups.**

SPEAKING OF SYRUP. . .

NEW

as we just were, we know you're going to love Wax Orchards new fruit syrups. Our only problem is we don't know which one (or ones) you're going to love most. Consequently, we're giving you a chance to try all four. Not just for pancakes. Add to club soda for a sparkling fruit drink or to one of our alcohol-free white wines (see p. 38) to create a Kir. Pour over ice cream or non-fat yoghurt for a splendid sundae. 12 oz.

#0291 Raspberry Syrup—$3.50 #0292 Blueberry Syrup—$3.50
#0290 Strawberry Syrup—$3.50 #0293 Cherry Syrup—$3.50

By Request: SugarTwin

NEW

Diabetic cooks love low- calorie Sugar Twin because you can use it in recipes calling for sugar since it measures and pours exactly like sugar *and* it can be used in baking. Since it's so hard to find, everybody demanded that we stock it. Here it is!

#0319 White Sugar Twin (2.85 oz. = *2 lbs. sugar)*—$1.19
#0320 Brown Sugar Twin (1.7 oz. =*1 lb. sugar.)*—$1.29

The First SugarFree Fig Bar

NEW

Made by Nature's Warehouse with tender loving care and whole wheat flour. Astoundingly good. 1 lb. package.

#0322 Whole Wheat Fig Bars—$2.69

STRETCH ISLAND FRUIT LEATHER

1 serving (½ oz) = ⅔ fruit exchange.

A tasty fruit treat!

Available in Apple, Grape, Peach, Apricot, and Blackberry.

No sugar added.

No artificial anything.

A perfect snack for diabetics of all ages.



STRETCH ISLAND FRUIT INC.
Grapeview, WA 98546
(206) 426-5724

Fruit Leather Order Information

#0257Apple—35¢ #0255 Apricot—35¢ #0259 Blackberry
#0258 Grape—35¢ #0256— Peach—35¢

Those Wonderful Stretch Island Folks also make the similar, but more exotic **FRUIT RIPPLES**. Tasting one of these is like a quick trip to the tropics. They come in colorful boxes of 6 individually-wrapped 1/2 oz. servings. $2.49 per box.

#0262 Banana #0260 Mandarin Cherry #0261 Pina Colada



A Cause For Celebration . . .

NEW

ALCOHOL-FREE WINE

The most delightful development on the Small Indulgences scene for diabetics is the arrival of two new lines of alcohol-free wine. These wines actually have less alcohol than that which occurs naturally in orange juice. We didn't know there was *any* alcohol in orange juice. Maybe that's why so many Type I diabetics insist on drinking orange juice to bring up their blood sugar when we all know that glucose tablets like Dextrosols and even, according to the Glycemic Index, mashed potatoes bring it up faster.

These wines are truly remarkable. There have been alcohol-free wines before, but they tasted like concord grape juice and had a high sugar content. These wines taste like quality premium dry wines because that's exactly what they are. One of the Ariél wines even won a gold medal at the Los Angeles County Fair in competition against wines with alcohol. These wines also cost like quality wines—we once saw one of them offered on a menu in San Diego at $2.75 a glass.

Just as is said about everything that a diabetic con-templates doing, check with your doctor. Generally it would seem that there would be no problem for a diabetic to indulge in alcohol-free wines. A special advantage for people on a weight-loss program is that these alcohol-free wines have half the calories of regular wine. (The calories are in the alcohol.) This is another doctor-checker, but for pregnant women—diabetic or not—these alcohol-free wines are a way to feel celebratory and to enhance your dining experiences without risking damaging the baby. At the opening of our South Bay (Torrance) Center, a pregnant diabetic psychiatrist (who must know what she's doing) sampled these wines and snapped up several bottles of each to last until delivery day.

You may have family members or friends who want to avoid alcohol for other reasons than diabetes. The son of one of our employees is a recovering alcoholic. This year he was able to join in the holiday festivities with the rest of the family with a glass or two of champagne—alcohol-free, of course. Others want to avoid alcohol for general health reasons. And drinking and driving is something nobody should consider doing. Consequently these wines are perfect to serve to "designated drivers."

We've made many wine-tasting tour of California's Napa Valley and we have also traveled both the Rhine and Mosel Valleys in Germany and we find these new alcohol-free wines to be among the very best that have flowed over our tastebuds. We're certain you will agree.

Alcohol-Free Wine Order Information

#0245 Ariél Blanc (white)—$4.49
#0246 Ariél White Zinfandel (rosé)—$5.49
#0247 Ariél Cabernet Sauvignon (red)—$6.49
#0248 Ariél Brut Champagne—$8.25
#0324 Hans Barth Riesling—$7.50

Wine Cellar Special

Start your own wine cellar with one bottle of each of these premium wines and save 10%

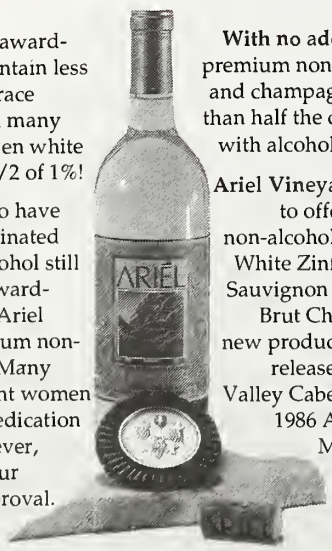
0345 Wine Cellar Special—$29.00

The Best of California

ENJOY THE ONLY NON-ALCOHOLIC WINE TO WIN A GOLD MEDAL AGAINST WINES WITH ALCOHOL

Ariel Vineyards' award-winning wines contain less alcohol than the trace amounts found in many fruit juices and even white bread, less than 1/2 of 1%!

Many people who have decreased or eliminated their intake of alcohol still drink delicious award-winning wines: Ariel Vineyards' premium non-alcoholic wines. Many diabetics, pregnant women and people on medication enjoy Ariel; however, please consult your physician for approval.



With no added sugar, Ariel premium non-alcoholic wines and champagnes contain less than half the calories of wines with alcohol.

Ariel Vineyards is delighted to offer you these fine non-alcoholic wines: Blanc, White Zinfandel, Cabernet Sauvignon and a California Brut Champagne. Three new products scheduled for release are: 1985 Napa Valley Cabernet Sauvignon, 1986 Alexander Valley Merlot and a 1987 Blanc de Noirs Champagne.

Ariel Vineyards filters the alcohol - not the flavor - from fine wines.

The Best of Germany

HERE'S TO YOUR HEALTH!

YOU WILL NOT BELIEVE HOW GOOD A WINE CAN TASTE WITHOUT ALCOHOL!

1986 Hans Barth Riesling De-Alcoholized Wine

Imported from Germany, this delightfully spicy Rhine wine is perfect for those who love fine wine, but in the past had to turn down a glass for health reasons.

Made of ripe Rheingau Riesling grapes and carefully fermented this wine contains less than 0.5% vol. alcohol and approximately 130 calories per bottle.

$7.50 per bottle or $86 for a box of 12 plus shipping.
3 bottle minimum order. Visa/MC accepted.

Call TOLL FREE 1-800-652-7777 for East Coast Orders.
Call SugarFree Center TOLL FREE numbers for West Coast Orders.

Small Indulgences that are . . .

BIG FAVORITES



BAKING MIXES

Batter-Lite Brand

Cake mixes and frosting mixes to solve your birthday (and your *un*birthday) problems. Sweetened with fructose, low sodium, low cholesterol. For imaginative desserts, order *Cake Mix Magic* on the book list (#9017, $1.00)

#0059 Chocolate Cake ---$1.89 #0062 Chocolate Frosting --$1.89
#0060 Lemon Cake Mix---$1.89 #0063 White Frosting Mix---$1.89
#0061 White Cake Mix---$1.89

BEVERAGES

Real Fresh

At last, a low-fat sterilized milk that has a shelf life of 6 months *without refrigeration*. Perfect for travel and backup pantry supply and excellent for low blood sugar. Best chilled.

#0148 Milk (8 oz.-3 pack)---$1.25

CANDIES

Delty Chocolates.

These high quality chocolates are made by diabetic master dessert-maker, Herman Tyor. Sweetened with mannitol. Turtle Loves are similar to Turtles.

#0074 Assorted Chocolates (6 oz.)___$5.00
#0073 Assorted Chocolates (12 oz.)___$9.00
#0075 Turtle Loves (10 oz.)___$10.95

Franconia Fructose Chocolates

These high quality European chocolate bars and truffles are sweetened with pure fruit sugar (fructose) and will not run your blood sugar up suddenly as sucrose does. If you're out of control, unfortunately, fructose acts like sucrose, and that's another good reason to stay in control. So you can enjoy these sinfully sybaritic treats from Germany!

Chocolate Bars (3.5 oz.)

#0113 Milk ---$2.25 #0114 Orange-Hazelnut ---$2.25
#0115 Bittersweet ---$2.25 #0116 Milk-Mocha ---$2.25
#0117 Almond-Hazelnut ---$2.25

Truffles (8 per container)

#0118 Coconut---$3.00 #0177 Red Wine---$3.00
#0119 Hazelnut---$3.00 #0176 Rum Butter---$3.00
#0120 Passion Fruit Mandarin---$3.00

Franconia also now makes gummi bears and toffees sweetened with HSH. Perfect treats for children. Gummi bears come in assorted flavors and each package of toffees has 5 fantastic flavor amalgams: Coffee/Banana, Apricot/Chocolate, Rasberry/Lemon, Strawberry/Caramel.

#0146 Jolly Bears (4 oz.)---$1.49 #0178 Taste Plus Toffee (15)---$1.00

FOR HAPPIER HOLIDAYS!



We almost always have special candy gift packages for holiday-giving. Please call on our toll-free numbers to find out what delights are available.

1-800-972-2323 (Nationwide)
1-800-336-1222 (California)

Miss Saylor's

The chocolates offer a variety of epicurean delights---creams, nougats, nut clusters, and caramel. The chews, nougats and caramels and coffee and decaf hard candies are tip top quality.

#0144 Chocolates (8 oz.)---$6.50 #0052 Caramels (4 .5 oz.)---$1.99
#0050 Coffee Breaks 3 .5 oz.)---$1.99 #0182 Decaf (3 .5 oz.)---$2.59
#0051 Caramel Nougats (4 .5 oz.)---$1.99
#0053 Taffree (4 .5 oz.)---$1.99

Sorbee Hard Candies

These sorbitol-sweetened hard candies are salt-free and have no artificial flavors. And look at the amazing flavor array!. Lollypops for the kids. Bags are 2 oz.; lollypops,1.75 oz.

#0090 Butterscotch---89¢ #0088 Sour Lemon---89¢
#0091 Cherry---89¢ #0087 Strawberry---89¢
#0093 Chocolate---89¢ #0095 Tropical Assortment---89¢
#0092 Cinnamon---89¢ #0085 Wild Fruit Mix---89¢
#0094 Gourmet Delight---89¢ #0086 Wintergreen---89¢
#0089 Orange---89¢ #0096 Lollypops---99¢

CEREALS

Barbara's Bakery

This is not Barbara, the SugarFree Center's token non-diabetic, but Barbara of Barbara's Cookies fame (see below).This bakery, just north of San Francisco, is famous for its health foods, and these fruit-juice-sweetened cereals are perfect examples of their art. These breakfast treats are not only good for you, but they are tasty beyond belief.

#0213 Corn Flakes (9 oz.)---$1.99 #0214 Toasted O's (8 oz.)---$2.19
#0212 Brown Rice Crisps (11 oz.)---$2.59

Kashi Co.

Kashi itself is a hot cereal or versatile pilaf and Puffed Kashi is a cold cereal. Both are a blend of 7 whole grains and sesame seeds that add up to a complex carbohyudrate of high quality protein and fiber without sodium, cholesterol or fat. A favorite with runners, triathlon competitors and plain folks.

#0100 Kashi (19.5 oz.)---$2.40 #0101 Puffed Kashi (7.5 oz.)---$1.60

Pacific Rice Products

This delicious and soothing hot brown rice cereal has a sweet nutlike flavor and is high in fiber and complex carbohydrates. Cooks in 30 seconds. Flavor it with Cary's Syrup and/or raisins and nuts or some of our fruit spreads.

#0183 QuickN Creamy Hot Rice Cereal ---$3.35

Quaker

Mother's Oat Bran is a perfect hot cereal and a perfect baking bran. It's 100% oats and that makes it a high fiber blood sugar leveler that also vacuums up cholesterol. When you order, request a free copy of June's oat bran muffin recipe.

#0099 Mother's Oat Bran---$1.79

CHEWING GUM

Wrigley's

Chewing gum is a good way to relieve stress and keep from eating something just for oral gratification. NutraSweet-sweetened Wrigley's regular and bubble are our personal favorites for chomping when we're on a *H-O-G.* deadline.

#0152 Peppermint (15)---70¢ #0151 Spearmint (15)--70¢
#0153 Extra Bubble Gum (15)---70¢ #0154 Hubba Bubba (5)---35¢
#0155 Hubba Bubba-Grape (5)---35¢



More BIG FAVORITES



COOKIES

Barbara's Bakery

Barbara's cookies are super good and super wholesome because they're sweetened with fruit juice and made with whole wheat flour. Chocolate Chip, Fruit & Nut 8 oz.; all others 5 oz.

#0065 Animal Cookies (Cinnamon)---$1.65
#0066 Animal Cookies (Vanilla)---$1.65
#0164 Chocolate Chip---$2.45
#0142 Chocolate-Chocolate Chip ---$2.45

#0067 Date Walnut--$1.49
#0068 French Butter--$1.49
#0143 Fruit and Nut---$1.95
#0069 Oatmeal Raisin ---$1.49
#0070 Peanut Butter --$1.49
#0071 Toasted Almond ---$1.49

Nature's Warehouse

What is so special about Nature's Warehouse cookies? Everything!! Moist and chewy with a true homemade taste. Whole wheat flour, non-hydrogenated oil, no additives, no preservatives, low sodium. Coconut is totally saltfree. 8 oz. packages.

#0206 Carob Chip---$1.88
#0204 Carob Fudge--$1.88
#0205 Coconut---$1.88
#0208 Date---$1.88
#0203 Peanut Butter---$1.88
#0207 Wheat-free Oat Bran---$1.88

CRACKERS & SNACKS

Cel-Ent Norwegian Cispbread

Our Norwegian crispbread is 85% bran. The label says "ideal for slimmers as part of calorie-controlled diets" and "recommended for diabetics." The label is right.

#0103 Bran Crispbread (3.5m oz.)---$1.50

Pacific Rice Crispy Cakes

Not your ordinary styrofoam-tasting rice cakes. The texture of these Crispy Cakes is light and (you guessed it!) *crispy* and their flavors are vibrantly wonderful! Only 40 calories in each 3"x 3" pallet of palate pleasure. 30 Crispy Cakes per package.

#0185 Apple Cinnamon --$1.29
#0172 Chili & Cheese ---$1.29
#0186 Italian Spice ---$1.29
#0184 Natural ---$1.29
#0173 Raisin & Spice---$1.29
#0174 Sodium Free ---$1.29

Spicer's Nutriwheat

Nutriwheat tastes like the crunchy best of junk foods, yet it's high fiber, low sodium, low fat and full of vitamins and minerals. For weight loss, combine it with a cup of nonfat milk and you have a quick, perfectly balanced meal which gives a fine feeling of fullness. The high fiber helps level off blood sugar. 1 oz. packages.

#0189 Apple Cinnamon---$1.39
#00190 Barbeque---$1.39
#0188 Chocolate---$1.39
#0187 Original---$1.39
#0192 Peanut---$1.39
#0191 Sour Cream & Onion---$1.39

Superior Protein Products Lite Munchies

Lite Munchies are crispy, crunchy snack chips made from nonfat milk. Rich in calcium, low in sodium, low in calories, these are a weight watchers favorite. 2/3 less fat than potato chips. An easy and interesting milk exchange. 1/2 oz. packs.

#0217 Barbeque---39¢
#0216 Chocolate---39¢
#0218 Nacho Cheese---39¢
#0219 Toasted Onion---39¢

JAMS/JELLIES/PRESERVES

Clearbrook Farms Spreads

These are not simple jams or preserves. They are luxurious jars of prime whole fruit in their jelled natural juices. Use not just as a breakfast biscuit, toast, waffle or pancake spread, but as a topping for ice cream, pudding or

(Please see next column)

yoghurt. So rich and flavorful that 1 fruit exchange is a peak experience. They're more expensive than most—they deserve to be! 12 oz. jars.

#0200 Red Raspberry ---$4.75
#0200 Michiban Strawberry---$4.75
#0202 Wild Blueberry ---$4.75
#0199 Tart Cherry ---$4.75

Judy & Toby's Preserves

Standard jams are full of sugar, which costs less than fruit. These are totally fruit and totally delicious, yet *very* reasonably priced. Keep your favorite varieties in the refrigerator and you'll never have a boring breakfast again. June always takes a jar on trips so she never feels deprived. 8 oz. jars.

#0049 Apple Butter ---$2.50
#0048 Apricot---$2.75
#0014 Boysenberry--$2.75
#0015 Orange-Cranberry ---$2.75
#0016 Raspberry ---$2.75
#0013 Strawberry ---$2.75
#0012 Grape ---$2.75

Wax Orchards

The fruit for Wax Orchards products is from a 200-acre farm near Seattle. You can taste the difference and the loving care Betsy Sestrap personally puts into her tremendous variety of fruit butters, chutneys, conserves and fancifuls. She makes the only mincemeat possible for diabetics. 10 oz. jars.

#0108 Apricot-Pineapple Conserve ---$4.50
#0112 Mincemeat ---$4.50 #0124 Apricot/Ginger Chutney—$4.50
#0294 Raspberry Fanciful—$4.50 #0294 Strawberry Fanciful—$4.50
#0125 Berry Sweet and Sour Sauce-$4.50
#0109 Cranberry Chutney—$4.50
#0108 Apricot-Pineapple Conserve—$4.50
#0106 Apple-Raspberry Butter—$3.50
#0107 Apricot-Apple Butter—$3.50
#0111 Strawberry-Apple Butter—$3.50

NUTS & NUT BUTTERS

Paul's Peanuts

Paul's Peanuts taste great yet only have 1/2 the fat and calories of dry roasted. The oil is pressed out by air and they are then roasted in safflower or sunflower oil and vacuum sealed. The 7 oz. can has as many peanuts as 12 oz. of dry roasted.

#0147 Peanuts-lightly salted---$2.59 #0126 Peanuts-no salt---$2.59

Roaster-Fresh Nut Butters

These peanut and almond butters are nothing but freshly roasted unblanched nuts---no sugar, no salt, no hydrogenated fats, no preservative or stabilizers. The flavor is like eating the very essence of the pure nut. Almond butters 16 oz.; peanut butters 32 oz.

#0229 Creamy Almond--$4.75
#0209 Creamy Peanut--$4.75
#0230 Crunchy Almond --$4.75
#0210 Crunchy Peanut ---$4.75

SALAD DRESSINGS & OILS

Avco Avocado Oil

We love California avocado oil because, like olive oil, it is a monunsaturate—now considered the healthiest. We love avocado oil because its mild flavor makes it appropriate for all kitchen uses. It has a rich, buttery flavor. In fact, since it has 8.2 calories per gram rather then the 9 of most other oils and butter, you can reduce calories and cholesterol in recipes by substituting 1/2 or 2/3 of the butter with avocado oil. It also has a very high smoke point and less of it is absorbed when you fry food in it. Use it for salad dressing, stir-frying, marinades, sauces, baking. It's the best! Indulge yourself!!

#0162 Avocado Oil (12.7 oz.)---$5.25

SALAD DRESSINGS & OILS *(continued)*

Measured Meals Salad Dressings

We've found the answer to enjoying salads in restaurants: carry your dressing in the form of individually packaged servings that you simply add to whatever salad you order. That's exactly how to use our Measured Meals low-cal but tasty and safe dressings. Just as convenient at home. 20 packets per box.

#0194 Bleu Cheese---$2.50 #0193 Chef---$2.50
#0196 Creamy Garlic ---$2.50 #0195 Italian ---$2.50

Sweet Lite Mayonnaise

Sweet Lite Dietetic Mayonnaise has half the fat and calories of the real stuff yet will make your taste buds happy.

#0064 Dietetic Mayonnaise (16 oz.)---$2.49

SAUCES

Hot Cha Cha Sauces

These chunky, all-natural, salt-free sauces are from Texas where they really know how to make 'em . Nothing but ripe tomatoes, jalapenos and fresh vegetables. Lots of variety for every taste and every use. Chunky salsas 16 oz., others 12 oz.

#0227 Chunky BBQ ---$3.09 #0228 Chunky Taco ---$3.09
#0226 Texas Salsa-Hot--$2.48 #0225 Texas Salsa-Medium--$2.48
#0224 Texas Salsa-Mild (12 oz.)---$2.48

Chi Bella Italian Sauce

At last, low calorie and low salt or salt-free Italian sauces for easy preparation of all that good Italian stuff we all love: pasta, pizza, mozzarella marinara, lasagna, omelets---anything Italian. 32 oz. jars.

#0215 Sauce-Low Salt---$3.25 #0234 Sauce-No Salt--$3.25

SPICES

Arizona Mustards and Spice Mixes

The Arizona Champagne Mustard contains no salt, no sugar and no artificial sweetener. The Cajun variety is super HOT! The Herbal Spice Mix makes delicious dilly dips and sauces and soups. The Southwest Mix has red peppers, celery, onion, chili and garlic and is the easy way to make salsa or guacamole. Mustards 8 oz., Spices 2.5 oz.

#0078 Herbal Spice Mix --#4.00 #0079 Southwest Mix --$4.00
#0076 Mustard--$4.00 #0077 Mustard-Cajun---$4.00

Bakon Seasonings

The Barbecue Flavor and Hickory Style give you the great taste of bacon without the fat and chemicals of the real thing. For soups, beans, sauces, casseroles etc. Bakon Sour Cream & Chives replaces another old fat-full real thing. Combine it with non-fat yoghurt for baked potato topping or dips.

#0158 Barbecue Flavor (1.65 oz.)---$1.79
#0156 Hickory Style (2 oz.)---$1.29
#0157 Sour Cream/Chives---$1.79

Life Salt

Formulated by an endocrinologist, Life Salt has half the sodium of regular salt, no sugar (as most commercial salts do!) and traces of magnesium and potassium, which are trace elements believed to be beneficial to diabetics. 8 oz. shaker jar.

#0007 Life Salt---$3.50

Parsley Patch Seasonings

These six seasonings will enhance any dish you prepare. They contain no sugar, salt, or MSG. Enough different distinctive flavors to please all personal and ethnic tastes. 8 oz. jars.

#0040 All Purpose Blend---$2.05 #0041 Garlic Saltless --$2.29
#0045 Mexican Blend—$2.05 #0043 Lemon Pepper---$2.29
#0046 Oriental Blend ---$2.29 #0044 Italian Blend ---$2.05

(Parsley Patch Information Continued on next column)

Parsley Patch Seasonings *(continued from previous column)*

Save by purchasing all 6 and get a free copy of *Ron's and Mom's Favorite Recipes using Parsley Patch Seasonings.*

#0047 Set of Six Blends---$13.00

Wicker's Barbecue Marinade & Basting Sauce

Barbara's from Missouri and she know's what authentic barbecue tastes like—and this is it! Wicker's marinade and basting sauce has won 4 state championships. What's better, this ideal tasting marinade and basting sauce is right for diabetics, because it has no sugar and is low sodium. Enhances all meats and baked beans Includes 5 recipes.

#0220 Low Salt Hickory BBQ Marinade (18 oz.)---$2.75

SWEETENERS

Searle NutraSweet

Equal is the most popular noncaloric sweetener. It can be added to hot drinks and anything cold, but it can't be used in baking—it loses its sweetness in cooking. A packet = 2 tsp. of sugar in sweetening power and contains two calories. You hear distant rumbles about its safety so don't overdo.

#0160 Equal Packets (100)---$3.99 #0161 Equal Packets (200)---$6.99
#0159 Equal Tablets (100)---$2.29

Sweet Light

Fructose is fruit sugar and, therefore, a natural product. Although it has as many calories as sugar it has the advantage that it does not raise blood sugar as high or as fast as sucrose. However, if your blood sugar is already high, fructose acts just like sucrose. The granular form is ideal for baking and you can use less of it than sugar as it is sweeter. The liquid can be used as a substitute for honey in recipes.

#0083 Fructose-Granulated (8 oz.)---$2.39
#0110 Fructose-Liquid (11.25 oz.)---$2.39

Wax Orchards Fruit Sweet

Here's another diabetically sound product from Betsy's farm. It is a concentrated blend of natural fruit juices to be used in gourmet cooking. It averages the same sweetness by voume as refined sugar. As a substitute for sugar in recipes you reduce the liquid by 1/3. It is 45 calories per tablespoon. It can be used in any recipe that requires a sweetener. June prefers it instead of molasses in her muffins.

#0122 Fruit Sweet (17 oz.)---$3.50

SYRUPS

Cary's Maple

Cary's Maple Syrup is almost dietetically free---you can use 1/4 cup without counting it. Add a pack or two of Equal and 1/4 tsp. maple extract. You'll think it came out of a tree.

#0057 Maple Syrup (12 oz.)---$1.39

TOPPINGS

Fudge Sweet

Fudge Sweet is our greatest find in the indulgence line. An amazing fudge sauce sweetened with fruit concentrate. It has only a trace of fat (.07%) and 1/2 the calories of ordinary fudge sauces. It's the richest, darkest, chocolatiest, bittersweet fudge sauce imaginable. A teaspoon in a cup of nonfat milk makes nonfat chocolate (Make it in the microwave).

#0081 Fudge Sweet (10 oz.)---$5.00.

VEGETABLES

Just Tomatoes

These are California sun dried tomatoes at their best. A low - calorie snack or an enhancement of pasta sauces, pizza, salads, stir-frys, or *anything*. 6 tomatoes in each 1 oz. package.

#0197 Just Tomatoes—$1.99

NEW Small Indulgences



Irish Penicillin

That's what we're starting to call oatmeal. Dr. James Anderson originator of the HCF (high carbohydrate and fiber) diet and author of *Diabetes, A Practical New Guide to Healthy Living* (see p. 35) extols oatmeal's virtues for upping your fiber and lowering your cholesterol. Once when he was interviewed in England, he was so enthusiastic about oatmeal that the newspapers had headlines calling it a new "wonder drug."

We were convinced and have been regular oatmeal eaters for a long time now, but to tell you the truth we didn't exactly consider it an epicurian treat, since it often turned out to be gluey or lumpy or both. We didn't consider it an epicurian treat, that is. until we tried Authentic Irish Oatmeal, which we discovered at Rumplemeyer's in New York.

McCann's Imported Irish oatmeal is heavenly—nutty, flavorful and with an interesting texture similar to al dente pasta. So here it is, the paragon and pinnacle of oatmeals. (Warning: it does take 30 minutes to cook; we welcome suggestions from microwave experts on how to speed up the cooking for frantic folk.)

#0287 Irish Oatmeal (1 lb. 12 oz.)—$5.75

Cholesterol Cutters

In another significant study Dr. Anderson discovered that blood cholesterol can be reduced by 15% with the addition of three daily doses of a dietary fiber supplement. It reduced the LDL (low-density lipoprotein) cholesterol, the bad guys, while the HDL (high-density) good guys remained the same. Dr. Anderson says, "It increases cholesterol loss from the body as well as slows down the manufacture of cholesterol." Rumor has it that the fiber supplement used in Dr. Anderson's study was Metamucil. We now have the SugarFree form of it available in both cannisters and individual packets. Cannisters contain 11.1 oz. There are 16 single-dose packets in each box and they are effervescent.

#0327 Metamucil (Regular) Cannnister—$12.79
#0328 Metamucil (Orange) Cannister—$12.79
#0329 Metamucil (Lemon-Lime) Packets—$4.99
#0330 SugarFree Metamucil (Orange) Packets—$4.99

And don't forget Barbara's old favorite dietary fiber supplement, **Fiber Excel**. Its primary ingredient is oat bran so you know what a cholesterol vacuum cleaner it must be!

#0105 Fiber Excel (18 individual packets)—$7.95
#0104 Fiber Excel (16 oz.)—$9.95

COOK'S CLASSICS for Classy Cooks

Pat at our Del Mar Center is very hard to please, but Cook's Classics Salad Dressings have done it—especially the Garlic Lover's. Barbara goes for the Caesar, and the Tarchon French Herb is the connoisseurs' choice. The Garlic Herb Sauce is perfect for pasta, on vegetables, as an artichoke dip or as a barbecue baste. No sugar, MSG, or preservatives, low sodium.

0284 Cook's Classics Caesar Dressing—$2.99
#0282 Cook's Classics Garlic Lover's Dressing—$2.99
#0283 Cook's Classics Tarchon French Herb Dressing—$2.99
#0286 Cook's Classics Garlic Herb Sauce—$3.49

JalapeñOlé!

When those Princesses of Preserves, Judy and Toby (see p. 40) started out, their original product was their Jalapeño Jelly. It was, unfortunately, sugarfull. They went on to develop their extensive sugarfree preserve line, but Jalapeño remained forbidden to us. Now at last they've concocted a sugarfree Jalapeño. Piquant and perky. Makes a great hors d'oeuvre with cream cheese on a cracker or as a lively accompaniment to leg of lamb. Tell us other clever uses you come up with.

#0017 Judy & Toby's Jalapeño Jelly—$2.75

Perky Up Your Mornings

We thought we had enough delicious sugarfree cereals for all practical purposes, but then we tasted Perky's and knew they had to be added. So crispy and crunchy that they'll never soggy-up in milk even for the slowest breakfast-munchers. Perky's are so good-tasting that we all love to snack on them straight out of the box. All come in 10 oz. boxes except Nutty Rice (similar to Grape Nuts) which is 12.5 oz. Low sodium.

#0252 Perky Crispy Brown Rice—$1.89
#0253 Perky Crispy Brown Rice (Apple-Cinnamon)—$2.49
#0254 Perky Crispy Brown Rice (Carob)—$2.19
#0251 Perky Nutty Rice (Raisin Sweetened)—$2.19

Raisins in the Sun or the Rain

Raisins are great in any weather as a quick, healthful blood sugar pick-me-up. Strangely enough we had to travel all the way to New York to find these gems—organic *California* seedless raisins. They come in bags of nine 1/2 oz. "mini-snack" boxes. Perfect for pocket or purse or lunch bag or desk drawer.

#0306 California Seedless Raisins (9 mini-boxes)—$1.19

On the Trail to Good Health

The Sorbee folks who concoct those exciting multi-flavored hard candies and suckers (see p.39) also know how to keep things natural. They've made a super trail mixe-like health snack of all natural unsulfered sun-dried raisins, dry-roasted peanuts, sunflower kernels, cashews and walnuts. No added salt—less than 10 mg. sodium in the entire 2 1/2 oz. package. Stock up for hiking, biking, snacking, and just *enjoying*.

#0316 Sorbee Raisin and Nut Health Snack—99¢

Cheeses of a Lifetime

Our new Lifetime Cheeses reduce all the usual health risks of cheese (fat, calories, salt, and cholesterol) but keep the delicious flavor and melting qualities we all love. An ounce of Lifetime has only the same fat and calories as 1 oz. of chicken! Available at all SugarFree Centers, but , alas we can only mail them in cooler months and to places only 1 day away. (California from San Luis Obispo to Mexican border.) 8 oz.

#0241 Mild Cheddar—$2.89 #0243 Mozzarella—$2.89
#0242 Monterey Jack—$2.89 #0244 Swiss—$2.89

The BEANS You've Been Looking For

These organically-grown refried beans are prepared with safflower oil (not lard!) and a touch of sea salt. Rich, delicious taste, creamy texture. Ideal alone or as a dip or burrito or taco filling. Combine with corn for complete protein. 1 lb. can.

#0277 Refried Beans—$1.37

Exchanges for SugarFree Center Gourmet Health Foods and Sweet Treats

BAKING MIXES

Batter-Lite Brand

Cake Mixes: 1/10 cake = 1 starch, 2/3 fruit, 90 calories: (Fructose).

Frosting Mixes: 1/20 = 1/4 starch, 17 calories; (Fructose).

Blue Heaven

Blue Corn Muffin Mix: 1 muffin = 1 1/2 starch, 2 fat, 215 calories; (using skim milk).

Blue Corn Pancake Mix: 2 pancakes (4"ea.) = 1 starch, 1 fat (using skim milk), 125 cals.

BEVERAGES

Canfield's

Chocolate Fudge Soda: free

Real Fresh

Milk: 1 cup = 1 milk, 1/2 fat, 120 calories.

Wines Non-Alcoholic

Ariel Wines & Champagne: 3 oz. = 1/2 fruit, 26 calories.

Hans Barth Riesling & Champagne: 4 oz. = free, 15 calories.

CANDIES & DRIED FRUIT

Delty Chocolates

1 Piece = 1/5 fruit, 1 fat, 1/4 milk, 80 calories; (Mannitol).

Franconia Chocolates

Chocolate Bars: 2 squares = 1/4 fruit, 1/2 fat, 38 calories; (Fructose).

Gummi Bears: 1 oz. = 1 fruit, 1 lean meat, 96 calories; (HSH).

Toffee: 3 pieces = 1 fruit, 1/4 fat, 54 calories; (HSH).

Truffles (Coconut): 1 truffle = 1/3 fruit, 3/4 fat, 63 Calories; (Fructose).

Truffles (Hazelnut): 1 truffle = 1/3 fruit, 1 fat, 71 calories; (Fructose).

Truffles (Passion Fruit): 1 truffle = 1/2 fruit, 1/2 fat, 55 calories; (Fructose).

Truffles (Red Wine): 1 truffle = 1/2 fruit, 3/4 fat, 58 calories, (Fructose).

Truffles (Rum): 1 truffle = 1/2 fruit, 1 fat, 67 calories; (Fructose)

Golden Apple

People Pops: 1 lollypop = 2/3 fruit, 40 calories, (HSH)

Miss Saylor's

Caramel Nougats: 2 pieces = 2/3 fruit, 1/4 fat, 52 calories; (HSH).

Caramels: 3 pieces = 2/3 fruit, 1/2 fat, 68 calories; (HSH).

Coffee Breaks: 4 pieces = 2/3 fruit, 1/4 fat, 58 calories; (HSH).

Gourmet Chocolates: 1 oz. = 2/3 fruit, 1 1/2 fat, 130 calories; (HSH).

Taffree: 3 pieces = 2/3 fruit, 1/5 fat, 52 calories; (HSH).

Sorbee Hard Candies

All Flavors: 3 pieces = 1/2 fruit, 32 calories; (Sorbitol).

Lollypops: 1 lollypop = 1/3 fruit, 22 calories; (Sorbitol).

Stretch Island

Fruit Leather & Ripples: 1 = 2/3 fruit, 44 calories.

Tree of Life

Raisins: 1 box = 2/3 fruit, 45 calories.

CEREALS

Barbara's Bakery

Brown Rice Crisps: 1 cup = 1 1/2 starch, 120 cal.

Corn Flakes: 1 cup = 1 1/2 starch, 120 calories.

Toasted O's: 1 1/4 cup = 1 1/2 starch, 110 calories.

Kashi Company

Kashi (regular): 1/3 cup = 2 1/2 starch, 118 calories.

Puffed Kashi: 1 cup = 1 starch, 75 calories.

McCann's

Irish Oatmeal: 1/4 cup (uncooked) = 1 starch, 80 calories.

Pacific Rice Products

Quick'N Creamy Hot Rice Cereal: 1 oz. + skim milk = 1 1/2 starch, 105 calories.

Perky

Nutty Rice: 3 Tbs. = 1 starch, 80 calories; (Fruit Juice).

Crispy Brown Rice: 1/2 cup = 1 starch, 80 calories; (Fruit Juice).

Quaker

Mother's Oat Bran: 1/3 cup (uncooked) = 1 starch, 1/2 meat, 110 calories.

CHEESES

Lifetime Cheese: 1 oz. = 1 lean meat, 55 calories.

CHEWING GUM & Breath Mints

All flavors gum = free; (Nutrasweet).

All flavors mints = free; (Sorbitol + Nutrasweet)

COOKIES

Barbara's Bakery

Animal Cookies: 10 = 1 starch, 1/3 fruit, 1 fat, 135 calories; (Fruit juice).

Chocolate Chip: 2 = 1/2 starch, 1/3 fruit, 1 fat, 110 calories; (Fruit juice).

Chocolate-Chocolate Chip: 2 = 1/2 starch, 1/3 fruit, 1 fat, 110 calories; (Fruit Juice).

Date Walnut: 2 = 1/2 starch, 1/2 fruit, 1 fat, 1/4 meat, 165 calories; (Fruit Juice).

French Butter: 6 = 1 starch, 1/3 fruit, 1 fat, 135 calories; (Fruit Juice).

Fruit & Nut: 2 = 3/4 starch, 1/2 fruit, 1/2 fat, 125 calories; (Fruit Juice).

Oatmeal Raisin: 2 = 3/4 starch, 1/2 fruit, 1/2 fat, 109 calories; (Fruit Juice).

Peanut Butter: 3 = 1/2 starch, 1/5 fruit, 1 1/2 fat, 151 calories; (Fruit Juice).

Toasted Almond: 2 = 1/2 starch, 1/2 fruit, 1 fat, 1/4 meat, 167 calories; (Fruit Juice).

Nature's Warehouse

Carob Chip: 1 = 1/2 fruit, 1 fat, 68 calories; (Fruit Juice).

Carob Fudge: 1 = 1/2 fruit, 1/2 fat, 58 calories; (Fruit Juice).

Coconut: 1 = 1/2 fruit, 1 fat, 65 calories; (Fruit Juice).

Date: 1 = 2/3 fruit, 1/2 fat, 67 calories; (Fruit Juice).

Peanut Butter: 1 = 1/2 starch, 1 fat, 64 calories; (Fruit Juice).

Wheat Free: 1 = 1/2 fruit, 1 fat, 64 calories; (Fruit Juice).

Whole Wheat Fig Bars: 1 = 1/2 starch, 1/3 fruit, 60 calories (Fruit Juice)

CRACKERS & SNACKS

Blue Heaven

Blue Popcorn: 3 cups = 1 starch, 80 calories

White Corn Chips: 1 oz. = 1 starch, 1 1/2 fat, 150 calories.

Cel-Ent

Bran Crispbread: 1 slice = 1/6 starch, 12 calories.

Little Bear

Blue Corn Chips: 1 oz. = 1 starch, 1 1/2 fat, 150 calories.

Pacific Rice Products

Crispy Cakes: 2 = 1/2 starch, 40 calories.

Skinny Haven

Skinny Munchies: 1 pkg.: 1/2 starch, 1/2 fat,60 cal.

Sorbee

Raisin & Nut Health Snack: 2/3 fruit, 2 fat, 1/2 lean meat, 150 calories.

Spicer's

Nutriwheat: 1 starch, 1 fat, 110 calories.

Superior Protein Products

Lite Munchies: 1/2 oz. = 1/2 low fat milk, 60 calories (Nutrasweet)

JAMS/JELLIES/PRESERVES

Clearbrook Farms

Fruit Spreads: 1 tsp. = free (16 calories), (Fruit Juice); 4 tsp.= 1 fruit, 64 calories.

Judy & Toby's

All flavors preserves: 1 tsp. = free (16 calories) (Fruit Juice); 4 tsp. = 1 fruit, 64 calories.

Wax Orchards

All flavors butters & conserves: 1 Tbs. = 1/3 fruit, approx 23 calories; (Fruit Juice).

MEALS

Back to Basics

Beef Mariles: 1 meal = 1 vegetable, 2 1/2 lean meat, 130 calories.

Beef Romanoff: 1 meal = 1 vegetable, 2 lean meat, 1/2 skim milk, 160 calories.

Beef Stew: 1 meal = 1 vegetable, 1/2 starch, 3 lean meat, 200 calories.

Chicken Cacciatore: 1 meal = 3 lean meat, 1 1/2 vegetable, 150 calories.

Chicken Jene: 1 meal = 3 lean meat, 1/2 skim milk, 180 calories.

Shrimp Marinara: 1 meal = 2 vegetable, 2 lean meat, 120 calories.

Trout in Lemon Butter: 1 meal = 4 lean meat, 220 calories.

Turkey Chili: 1 meal = 1 vegetable, 1 starch, 2 lean meat, 210 calories.

Nutra-Choice (Frozen)

Baked Fish with Lemon Sauce: 1 meal = 3 lean meat, 1 1/2 starch, 1 vegetable, 325 calories.

Chicken Fajitas: 1 meal = 2 lean meat, 2 1/2 starch, 1 vegetable, 333 calories

Chicken Salsa: 1 meal = 3 lean meat, 1 1/2 starch, 1 vegetable, 295 calories.

Chicken Supreme: 1 meal = 3 lean meat, 1 1/2 starch, 1 vegetable, 320 calories.

Crepe Marco Polo: 1 meal = 2 lean meat, 1 1/2 starch, 1 vegetable, 1 fat, 300 calories.

Pasta Bolognaise: 1 meal = 1 lean meat, 2 starch, 1 vegetable, 250 calories.

Pepper Beef: 1 meal = 3 lean meat, 2 1/2 starch, 359 calories.

Ratatouille with Cheese: 1 meal = 1 lean meat, 1 1/2 starch, 2 vegetable, 225 calories.

Seafood Mariner: 2 lean meat, 2 starch, 1 vegetable, 287 calories.

Sliced Turkey Dinner: 1 meal = 3 lean meat, 2 starch, 1 vegetable, 334 calories.

Sweet & Sour Chicken: 1 meal = 2 lean meat, 1 1/2 starch, 1 vegetable, 1 fruit, 323 calories.

(Continued on next page)

EXCHANGES

(Continued)

Veal Parmigiana: 1 meal = 3 lean meat, 2 starch, 340 calories

Vegetarian Lasagna: 1 meal = 1 lean meat, 2 starch, 2 vegetable, 1 1/2 fat, 336 calories.

Yankee Pot Roast: 1 meal = 3 lean meat, 2 starch, 1 vegetable, 343 calories.

NUTS & BUTTERS

Pauls Peanuts: 33 nuts = 1 lean meat, 1/2 fat, 85 calories.

Roaster Fresh

Peanut & Almond Butter: 1 Tbs. = 1 high fat meat, 100 calories.

Sorbee

Raisin and Nut Health Snack: 1 pkg. = 2/3 fruit, 2 fat, 1/2 lean meat, 150 calories

SALAD DRESSINGS & OILS

Avocado Oil: 1 tsp. = 1 fat, 45 calories.

Cook's Classics

Salad dressings & marinades: 1 Tbs. = 1 fat, 45 calories.

Measured Meals

Salad Dressings: free, except Blue Cheese = 10 calories.

Sweet Light

Mayonnaise: 1 Tbs. = 1 fat, 50 calories; (Fructose).

SAUCES

Allied Old English

Hot Cha Cha Sauces; 1 oz. = 1/5 veg., 5 1/2 cal.

Ci-Bella

Pasta Sauce: 1/2 cup = 2 vegetable, 1/2 fat, 44 calories

SOUPS

Beef Lentil: 2 lean meat, 1/2 starch, 1 vegetable, 170 calories.

Chicken Gumbo: 2 lean meat, 1/2 starch, 1 vegetable, 150 calories.

SPICES

Arizona Products

All mustards and mixes: free.

Bakon

All Flavors: free.

North American Healthlabs

Life Salt: free.

Parsley Patch Seasonings

All Seasonings: free.

Wicker's

Barbeque Marinade: free.

SUPPLEMENTS

Fiber Excel: 1 scoop = 3/4 starch, 40 calories.

Metamucil: free

SWEETENERS

Searle

Equal: free.

Sugar Twin

Sugar Twin (Brown or White): free (saccharine)

Sweet Lite

Fructose: 1 tsp. = 1/4 fruit, 15 calories.

Fructose Liquid: 1/2 tsp. = 1/4 fruit, 10 cals.

Wax Orchards

Fruit Sweet: 1 Tbs. = 2/3 fruit, 45 calories, (Fruit Juice).

SYRUPS

Cary's

Maple Syrup: 1 Tbs. = 6 calories; (Saccharin & Sorbitol).

Wax Orchards

Syrups: 1 Tbs. = 1/2 fruit, 30 calories. (Fruit Juice)

TOPPINGS

Fudge Sweet: 1 Tbs. = 2/3 fruit, 48 calories; (Fruit Juice).

VEGETABLES

Just Tomatoes

Just Tomatoes: 5 slices = 1 vegetable, 30 calories

Little Bear

Refried Beans: 1/2 cup = 1 lean meat, 1 starch, 135 calories.

Exchanges based on 1986 ADA Lists. Sweeteners used appear in parentheses.

SKINNY MUNCHIES NEW

We've always loved the wonderful flavors and crispy crunchiness and low calories of Skinny Munchies. But we had one objection. They used coconut oil. As you may or may not know, although coconut oil does not *contain* cholesterol (no vegetable fat does) it is a saturated fat that can create cholesterol in the body. Of course, they use so very little oil (Munchies are baked rather than fried) that it probably wouldn't have made all that much difference. But we're fussbudgets so we protested. The Skinny Munchies people heard us and now they use minute amounts of sunflower oil for their baking and consequently now we have Skinny Munchies at the SugarFree Center. These chips were the hit of the opening of the Torrance Center. Our whole supply was cleaned out in tow hours!

#0240 Chocolate Fudge (1/2 oz.)—39¢ #0237 Nacho Cheese (1/2 oz.)—39¢
#0238 Smoky Barbecue (1/2 oz.)—39¢ #0239 Toasted Onion (1/2 oz.)—39¢
#0312 Nacho Cheese (4 oz.)—$1.69 #0313 Smokey Barbecue (4 oz.)—$1.69
#0314 Toasted Onion (4 oz.)—$1.64



NEW

POPS for the PEOPLE

These are adult lollipops that children will love too although they may be too young to fully appreciate the subtlety and complexity of the flavors: Double Chocolate Fudge, Frosty Chocolate Mint, Hot 'N Spicy Cinnamon, Very Very Cherry.

#0332 People Pops (5 assorted flavors)—$1.95

When it's Summertime and the UPS trucks are steaming, we don't recommend the shipping of delicate, meltable products like cheese and chocolate We'll only do it at your insistance and at your own risk!

For Gracious Living or For Emergencies . . .

It's *BACK TO BASICS*

These superb high quality gourmet entrees can be quickly prepared by dropping the foil pouch into boiling water or emptying the contents onto a plate and heating it up in a microwave. You won't believe how delicious they are! You'd be proud to serve them to your most discriminating guests.

Back to Basics entrees are perfect emergency rations. The can be used in little emergencies when unexpected visitors arrive at around dinner time, and they can also be used in BIG EMERGENCIES like earthquakes or hurricanes. You can cook Back to Basics in a pot over an open fire, and even if the water is contaminated the foil pouch protects the contents. These features make Back to Basics ideal for camping.

There has been a shortage of some entrees while the company was expanding its facilities. We expect to be back in full supply by May 31. (See more Back to Basics information on the next page.)

#0139 Beef Mariles—$3.30 #0136 Beef Romanoff—$3.00
#0137 Beef Stew #0135 Chicken Cacciatore—$3.00
#0140 Chicken Jené—$3.00 #0138 Shrimp Marinara—$3.30
#0134 Trout in Lemon Butter Sauce—$3.30 #0141 Turkey Chili—$3.00
#0232 Beef Lentil Soup—$2.50 #0233 Chicken Gumbo Soup—$2.50

Sweet Breath Sans Sugar NEW

We've added the complete line of Certs sugar-free mints. The Mini-Mints are similar to TicTacs, 5 oz., in plastic dispenser. Certs also makes an intriguing bubblegum: Bubblicious

Certs Breath Mints (.63 oz.)

#0339 Cinnamon—49¢ #0340 Icy Fruit—49¢ #0337 Peppermint—49¢
#0338 Spearmint—49¢ #0341 Wintergreen—49¢

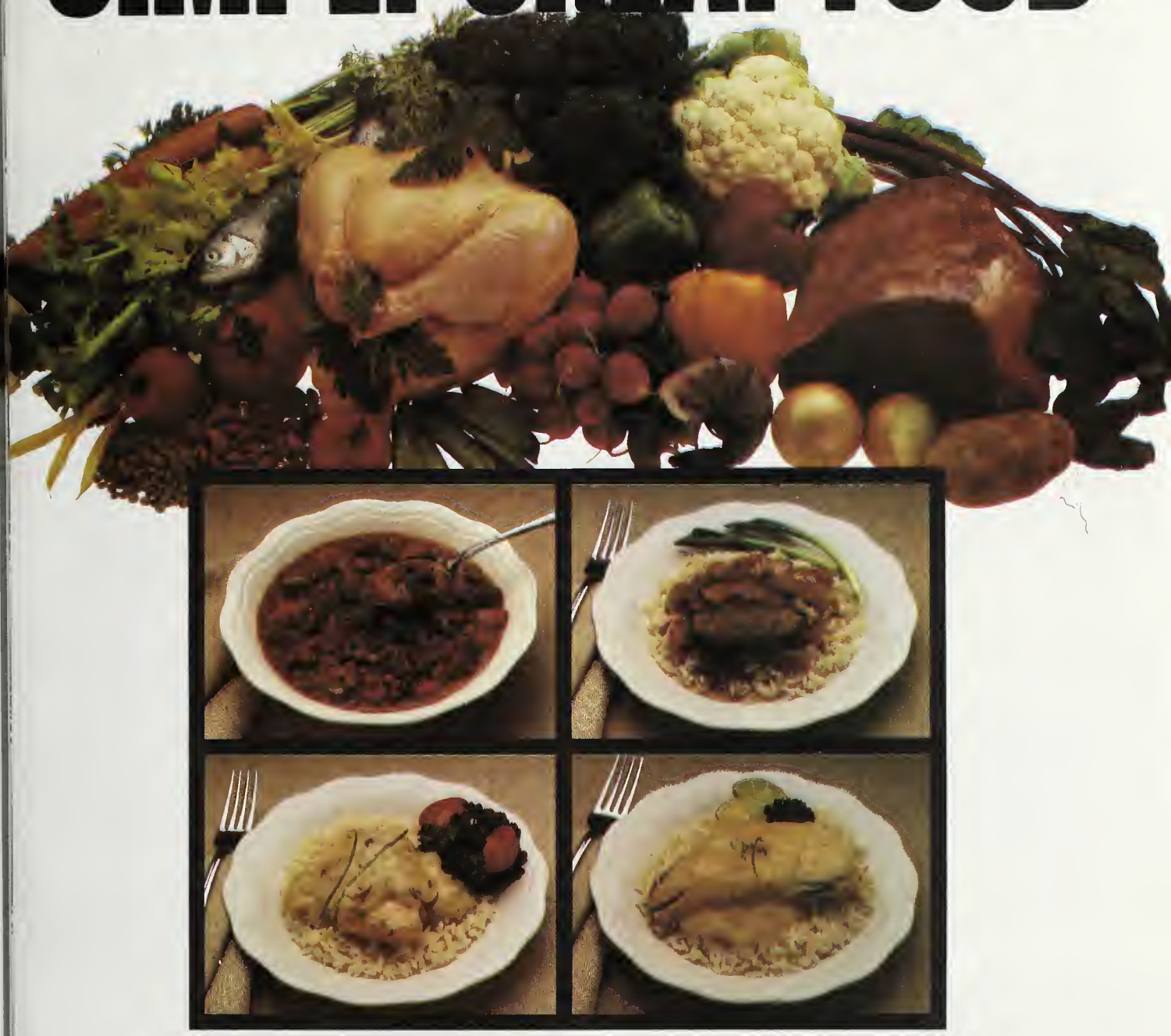
Certs Mini-Mints (.5 oz.)

#0333 Cherry—49¢ #0332 Peppermint—49¢ #0334 Spearmint—49¢

Bubblicious

0335 Strawberry 'N Cream—35¢ #0336 Cherries 'N Grape—35¢

SIMPLY GREAT FOOD



Come on "Back to Basics."™ Eight great entrees, plus two savory soups. The only portion-controlled meals reduced in calories, sodium, saturated fat and refined sugar – with diabetic exchanges on the package. And it's *tops* in taste and nutrition.

Back to Basics starts with the freshest ingredients. Vacuum-packed and sterilized – just like Grandma used to with her mason jars – to ensure home-cooked flavor. With convenient, shelf-stable packaging (stays fresh two years!) that eliminates the need for refrigeration or freezing.

Back to Basics – trout in lemon butter sauce, chicken breast cacciatore, beef romanoff, beef stew, shrimp marinara, beef mariles, chicken breast jené, turkey chili, chicken gumbo and beef lentil soup.

Back to Basics. Never has compliance with a diabetic diet tasted so good. Available through the Sugar Free Center, Inc.

Back To Basics

Simply great food.



of

CLASSIFIEDS

The *Health-O-Gram* Classified Section is a place for diabetics to advertise their businesses (Support Your Local Diabetic!) and for small companies or individuals offering goods and services to diabetics to reach a large audience—100, 000 copies printed—at very little cost.

We reserve the right to reject any advertisement that is weird or outlandish or makes unsubstantiated claims. Any product advertised must carry an unconditional money-back guarantee.

For Classified Ad rate information, please write or call Elsie Smallback at the SugarFree Center Van Nuys, P.O. Box 114, Van Nuys, CA 91408; (818) 994-1093.

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13701 Burbank Blvd. Van Nuys, CA 91401 (818)997-1216

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Clinical Psychology
A Diabetic Specializing in Diabetes Counseling
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Los Angeles, CA 90025
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Calif Lic. No. PG7551

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Cedars-Sinai Medical Center
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RESEARCH PROGRAM
needs diabetics with stomach problems to test new pill.
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For home nursing care; occupational, physical, or speech therapy; entero-stomal therapy; a health care aide or a homemaker/companion, please call:
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Supporting occupational, physical, and diabetes therapy with:
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GOOD NEWS ❦ BAD NEWS AND MORE ❦ GOOD NEWS

NutraChoice Meals

Eyes right. See those tempting and delectable NutraChoice Meals. They taste even better than they look—and you can't even see the healthiness of the ingredients. The Good News is that they are now exclusively available in Southern California at every SugarFree Center. The Bad News is that since they're FROZEN, we can't mail-order them to you. The More Good News is that by the time the next *Health-O-Gram* comes out you'll be able to order them directly and safely from the NutraChoice people themselves.

Then every one of you can enjoy NutraChoice—the high quality, convenient, and nutritionally prudent alternative. Totally heart-healthy with reduced sodium and fat. You'll find absolutely nothing to compare with them in supermarkets. Professional dietitians approve of these meals. In fact, professional dietitians were the ones who insisted that we make them available. There are twenty different complete meal selections so you'll have all the variety of dining out nightly in a fine restaurant. Come in and try them all.

DIABETIC DIET....PLEASURE!

Delicious meals that meet your prescribed dietary needs!
NutraChoice meals feature complete low calorie meals with entree, vegetable and starch.
Freezer to table . . . just minutes to mealtime . . .

NutraChoice® Variety . . . Putting the *Spice* in life.



There are a variety of NutraChoice meals — all pre-cooked and easy to serve. Packaged on microwave-safe dishware, they can be heated in conventional or microwave ovens.



Chicken Supreme.
320 Calories. 3 Lean Meat, 1½ Starch, 1 Vegetable.



Yankee Pot Roast.
343 Calories. 3 Lean Meat, 2 Starch, 1 Vegetable.



Salisbury Steak.
359 Calories. 3 Lean Meat, 2½ Starch.

low can they taste so good?

he answer lies in alternative and creative ways of intensifying flavors rough the blending of natural spices and herbs that intensify and ly make flavors stand up and be noticed!

NutraChoice Meals re available at all SugarFree Centers.

CALIFORNIA DIETETIC ASSOCIATION

This product meets CDA criteria for limiting fat, cholesterol, sodium and sugar as part of a balanced diet.

SugarFree Center
P.O Box 114
Van Nuys, CA 91408

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PDI Cases

Invented by a diabetic these cases carry pre-drawn syringes well-protected in their foam interiors. Wonderfully convenient for dining away from home. You can even preload mixed dosages if you use Nordisk NPH and Regular. With other mixtures you should fill 2 separate syringes. (2 will fit in the single case.) The multiple case holds 5 loaded syringes for those who need to have their syringes loaded in advance by others.

#1002 PDI Case (single)—$7.95
#1042 PDI Case (multiple)—$10.50

Lancets

We have the classic Monoject blue lancets and, at a $2 saving, what we consider the best of the generics. The choice is yours.

#2041 Lancets (200 generic yellow)—$9.50
#2012 Lancets (200 Monoject blue)—$11.50

Pick Real Cotton

Synthetic cosmetic puffs just aren't as absorbant and effective for wiping strips as the real thing.

#2047 Real Cotton Balls (300)—99¢

California Wallets

Machine washable with Velcro closures. Available in 4 colors or save $1 by ordering Surprise. Insulin Wallet holds 6-8 syringes, 2 bottles of insulin, swabs, and an I.D. card. 4" x 8". Blood Sugar Monitoring Wallet holds strips, control solution, finger-sticking device, lancets, record book and I.D. 4 1/2" x 7 1/2".

Insulin Wallets

#4006 Black—$11.95 #4007 Brown—$11.95 #4010 Navy—$11.95
#4008 Wine—$11.95 #4016 Surprise Color—$10.95

Blood Sugar Monitoring Wallets

#4019 Black—$13.95 #4011 Brown—$13.95
#4014 Navy—$13.95 #4018 Surprise Color—$12.95

TRUE TERUMO TALE

Carla, our diabetes nurse-educator in Van Nuys, recently became engaged. Wisely planning for the future, she decided to teach her fiancé, Brian, how to give her injections so he'd be in practice in case he ever needed to give her glucagon sometime in the future.

She said she'd been using Brand X and Brian was doing pretty well working with them in his injecting lessons. Then we happened to have some Terumo sample syringes to give away at the SugarFree Center, so she took some of those to try out. When Brian used one of those he noticed a big difference. "This is a really great syringe!" he said, "The needle is particularly smooth and sharp and the plunger is particularly easy to push. Get these from now on!"

Why don't you use the coupon above to see if you, too notice a difference? (You'll certainly notice a difference in the lower price!) Available from the SugarFree Center Mail Order Pharmacy (see p. 25) and at perspicacious and discriminating pharmacies across the country.

12/4/2015
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